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LIST OF ACRONYMS AND ABBREVIATIONS

ALJ	Administrative Law Judge
CEUS	Commercial Energy Usage Survey
CEC	California Energy Commission
D.	Decision
DEER	Database for Energy Efficient Resources
EM&V	Evaluation, Measurement and Verification
IEUS	Industrial Energy Use Survey
IOUs	investor-owned utilities
Joint Staff	Energy Division and CEC staff
Joint Staff Request	Joint Staff Request to CPUC for EM&V Budget Authorization and EM&V Fund Shifting Authority
M&V	measurement and verification
NRDC	Natural Resource Defense Council
ORA	Office of Ratepayer Advocates
PG&E	Pacific Gas and Electric Company
RFPs	Request for Proposals
SCE	Southern California Edison Company
SDG&E	San Diego Gas & Electric Company
TURN	The Utility Reform Network
PY	Program Year
RASS	Residential Appliance Saturation Survey
WEM	Women's Energy Matters

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Summary of California Code of Regulations
Title 20, Division 2, Chapter 3, Section 1343
Energy End User Data: Survey Plans, Surveys and Reports

Each large size utility and large size gas utility shall complete the survey plans, surveys, and reports described in this section, unless they choose the alternative compliance option described below.

Utilities must submit a survey plan to the California Energy Commission (CEC) for approval every four years that describes the scope and design of the survey, data to be collected, methods and schedules to be followed, format for presenting results, estimated costs, what confidential data will be used and how it will be maintained or special protections needed beyond those already included, and the means for ensuring representativeness of the entire user population. CEC staff may recommend improvements or amendments to this plan to enhance the value, reliability or relevance of the results to demand forecasting and analysis.

The CEC must approve the plan and its contents before utilities can proceed. If the CEC disapproves of a draft plan it shall specify the plan's deficiencies in writing. Within 30 days of receiving survey plan disapproval, the utility shall submit to the CEC a revised plan correcting the specified deficiencies.

Data collection requirements to be carried out every four years include characteristics (including efficiency ratings) of all energy using equipment, installed measures, controls to shift load, presence and type of any metering or telemetry equipment, presence and type of any energy-producing equipment or fuel supply, retailer identification or type of provider, location of building by zip code, patterns of behavior or operations affecting energy use and load profiles, and building characteristics. For residential customers, building type and vintage and demographic characteristics are added. For the commercial sector, NAICs code identifiers, and occupancy profiles are added. For the industrial sector, NAICs, number of employees, monetary value of shipments, and energy-using production processes are added. Corollary data for all surveys includes all accounting records, customer identifiers, and associated data needed for analysis and development of weights to expand respondent data to population; 8760 hours of energy consumption for each sample premise for all interval metered accounts or 12 months of energy consumption data for all others; and load metering data for each sampled account for each metered, sampled account. All

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described data and a survey methodology report documenting all information needed for subsequent analysis should be delivered to the CEC.

Utilities are required to provide data and a survey methodology report on the following schedule:

- (1) Residential Sector- on or before July 1,2003 and every four years thereafter
- (2) Commercial sector- on or before July 1,2004 and every four years thereafter
- (3) Assembly, process and other Industrial sectors: On or before July 1, 2006 and every four years thereafter

Within 6 months of the completed residential surveys utilities are required to provide the the Residential End Use Report with estimates of average energy consumption by each major end use by housing type and vintage and the Residential Saturation Report. Within 6 months of the completion of the commercial surveys utilities are required to provide the Floor Space Stock Report and Saturation Records and the Commercial Saturation Report.

Utilities can choose to have CEC staff manage this study process under the alternate compliance option. This option permits a utility to satisfy the requirements listed above by making a funding contribution to the survey to the CEC and providing certain data to the CEC, including, but not limited to, accounting records and geographic identifiers required for designing, selecting and properly weighting the sample, individual energy consumption histories for sampled accounts, and load metering data the Executive Director identifies as required. Utilities must respond in writing when notified that such participation opportunities exist that they agree to comply with the CEC's participation requirements. The CEC may approve or disapprove the request to use this option.

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Joint Staff Request to CPUC for EM&V Budget Authorization and EM&V Fund Shifting Authority

Introduction

This document represents the Joint Staff effort at developing an Evaluation, Measurement and Verification (EM&V) budget that will be used to achieve the CPUC's energy efficiency evaluation objectives for PY2006-2008.

Accompanying this document, Joint Staff present our own proposed EM&V budget to the CPUC for approval as an Excel spreadsheet. We also attach the utilities' proposed EM&V budgets and their accompanying write-ups.

This Joint Staff Request is organized in the following manner:

The first section provides an overview of Joint Staff's EM&V budget proposal. The second section provides a description of the study types and categories and the methodology that Joint Staff used to develop our EM&V budgets. The next section provides an assessment of the variables that might influence revisions to our budgets and evaluation plans. Finally, Joint Staff propose a procedure for notifying parties of changes to our EM&V plans and budgets and make our request for maximum fund shifting authority before concluding our EM&V budget authorization request.

Documents that complete our request include the following:

An Excel Workbook with the Joint Staff's EM&V Budget and single line items for the utility budgets; Supporting Documents from the Utilities including Excel Workbooks; and Accompanying Narratives Describing their Budget Request. The total number of documents that should be reviewed as part of this request are 9, including 4 Excel Workbooks, and 5 Word documents (including this one.)

Overview

Joint Staff requests that the Commission approve the Joint Staff and Utility EM&V budgets that are appended to this document in the form of an Excel Workbook. We request that the Commission adopt those budgets at the category level (as the three categories included), while providing the more detailed estimates as supporting work papers. In addition, we request that Joint Staff be delegated the discretion to work with Energy Division (and the

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equivalent level of CEC) Management to revise the submitted budgets on an as-needed basis. Our fund-shifting request is provided in more detail in that section of this request.

Our initial request of an evaluation budget equivalent to 8% of the energy efficiency budgets proposed for this cycle was based on our analysis of past evaluation expenditures during the period 1992-1998. Joint Staff have since performed a more detailed budget that we developed using a more refined methodology at the evaluation category and study component level. We have shared this analysis and discussed the line items and individual project budgets with the evaluation experts from the portfolio administrators and made changes based on this feedback.

During meetings between Joint Staff and the Utilities' Evaluation Leads, the utility representatives made two requests of us. We were able to reach a compromise on both. The first request from the utilities was that they be responsible for the RASS, CEUS and IEUS. The second request came from two utilities, PG&E and Edison, who had drafted budgets that exceeded the 2% of program funds that had been allocated for them. Joint Staff agreed that utilities could manage the three studies listed above and choose to rely upon CEC staff to oversee those efforts if they so choose. We agreed to the amount of funding that we had estimated for those studies to the utility budgets, and to allow them some additional funding by cutting our share from 6% to 5.8% so that the utilities could increase theirs to 2.2%.

This document provides the rationale for the more detailed evaluation budgets and outlines the process that will be used to organize our evaluation tasks into an initial set of specific evaluation studies and budgets over the next three months, and for development of additional efforts in the following months and years.

The Joint Staff Excel workbook that accompanies this document provides more detailed budget estimates for the projects to be managed by joint staff. Staff is requesting funding authority that will allow us to expend PY2006-2008 funding over the time that it takes us to complete our evaluation work associated with those program years. We have estimated costs on an annual basis in the amounts of \$ 28.2 million for PY2006, \$37.8 million for PY2007 and \$52 million for PY2008. Our estimated budgets are higher in later years because many of the most comprehensive load impact studies must collect at least 18 months of data to accurately estimate the load impacts of the major program groups and collect market level data on the overall impacts of the

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portfolio of programs in key sectors. We feel that it will be essential to make sure that we have adequate resources available in the final year when installations are expected to be at their height, and plan to manage our available funding accordingly. However, we request the authority to either move expenditures forward or back depending as the need may arise, and to expend evaluation funds as necessary after the end of PY2008.

The majority of evaluation funding (roughly 54%) that will be managed by Joint Staff will be used for Program and Portfolio Evaluation Studies. These studies are expected to provide a comprehensive evaluation of the peak and annual energy savings of the proposed programs and the aggregate savings from each portfolio. This funding is consistent with the Commission's policy goal of increasing the accuracy and credibility of program savings estimates through the adoption of measurement protocols in the fall of this year. It is also consistent with staff's proposal to ensure that the load impacts or the program effects of all programs be evaluated at least once during the three year cycle. The second highest level of funding (roughly 12%) is devoted to the category we are calling EM&V Management, Quality Assurance, and Implementation Support. Our third and least costly (roughly 7%) category we refer to as Overarching and Policy Support Studies. That category includes funding for the maintenance and updating of the DEER and future updates to energy efficiency potential studies that will provide the information that may be needed to set future savings goals. The utility budget make up the remainder of the EM&V budget.

Budgeting for EM&V Management, Quality Assurance, and Implementation Support

Database Management Support (Line Item 1 in Joint Staff Budget)

The Database Management Support budget will cover costs associated with gathering and maintaining data and documentation needed for efficient program oversight and management of EM&V contracts and projects. **This will be a secured database that will not be open to the public, as it may contain customer specific or other forms of confidential data.** CPUC legal staff will develop contract language that provides protection for any confidential data used to conduct evaluation activities including that held in CPUC managed databases. However, the studies that this data is used to inform will be made available to the public.

This line item will cover the following expected activities:

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1. **Database Design and Infrastructure Development** - Costs of data system development including web-based user front end development, database development and hardware costs. Joint Staff expect that these databases will house data and calculation procedures used to complete load impacts for each program and will serve as a back up of data and calculation procedures to reduce the risk of data loss, lend ability to replicate savings calculations, and to be used for meta-evaluations to determine where future studies are needed.
 - a. Cost of modifying and maintaining existing program reporting tool (EEGA).

The EEGA system will be modified to adapt to the administrative structure adopted by the Commission for program years 2006-2008. These modifications will simplify program data submission, enhance performance, improve system reports for decision-makers & state staff analysts, and will make required adjustments to handle any changes to the program oversight report content & reporting protocols.
 - b. Cost to develop an EM&V reporting front end, database, and document repository.

To develop database(s) and document repository system(s) to assist in the management and warehousing of data and documentation related to program & portfolio evaluations, and overarching and policy support projects.
2. **Database Management** – Costs for EM&V and reporting data system IT management and user support needs.
3. **Data Coordination and Management** – Costs for contractor support to assist in oversight of EM&V reporting including the following: ensuring compliance with reporting protocols, ensuring data consistency, comparison of data fields being collected in the field, recommendations to utility managers to collect all needed data for evaluations, and general management of data for state staff and their EM&V contractors.

The budgets for the Database Management Support line item are based on staff experience with existing systems. The budgets assume significant adjustments to account for the expected increase in the breadth and depth of data collection and warehousing efforts needed to provide reliable support to state staff, their consultants, and decision-makers in carrying out the oversight, policy support and program evaluation responsibilities assigned to state staff by the Commission. The specific project budgets will be revised once there is a better

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understanding of the scope of program oversight and EM&V reporting, and once technical specifications of the data systems are developed.

Technical Consultants to Joint Staff

This budget is intended to allow staff to contract for expertise and support for ourselves and to assist and help with coordination of our evaluation contractors in the following areas: Evaluation Planning, Study Review and Revision (including Protocol Compliance Review and Sampling Design Assistance), RFP development, Report Review and Revision.

Financial and Management Audits

This budget will be used to periodically conduct financial and management audits that will assist the CPUC in ensuring that ratepayer funds are satisfactorily accounted for and spent for their intended and authorized purpose.

Human Resource Development and Training

This budget will be used to assist the CPUC and CEC with their costs associated with the development and training of their internal evaluation staff.

6 FTEs (at \$150,000 each position per year)

This budget will be used to pay for additional positions at the CPUC or CEC who will be responsible for developing, overseeing and coordinating evaluation plans, activities and contractors.

Energy Division Support

This budget is for the historic amount that the four utilities contribute to the Energy Division's energy efficiency budget. This item is statutorily mandated.

Budgeting Methodology for Impact and Program Effects Studies

1. Joint Staff determined that in order to provide the flexibility that we will need to provide ourselves with the building blocks to develop studies, we would need to first budget at the program strategy level. Later, we will organize those strategies into groups that can be effectively and efficiently evaluated within a single study. As such, the individual line items will not be contracted for individually, rather as a part of a meaningfully organized group.

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2. We requested from utility evaluation managers a representative sample of past program evaluation costs and budgets for past programs that were evaluated by the utilities' evaluation staff.
3. Using historical information on program evaluation costs, we determined a relationship between the size of the evaluation impact budget and the budget of the program being studied. The ratio of evaluation to program costs ranged from 1% to 8% with a mean of 4% for comprehensive evaluations requiring site or project level data collection.
4. Joint Staff developed a list of 38 core program delivery strategies and requested that utility staff provide a matrix that maps the utilities' proposed program budgets to the program delivery strategies.
5. Joint Staff asked the utilities to verify that the list of 38 program delivery strategies covered the possible delivery strategies that the utilities expect to be employed during the 2006-2008 program term.
6. Joint Staff requested that the utilities add any program delivery strategy that appeared to be missing from the list of 38 developed by staff. SCE added the program delivery strategy "Residential Measure Giveaways."
7. Based on Joint Staff's knowledge of the programs from serving on the Peer Review Groups and a review of the utilities' program filings, Joint Staff estimated the relative weight or importance of each of the program delivery strategies slated to be used to support each proposed program.
8. Joint Staff re-allocated the proposed program budgets to program strategy cost estimates based upon the weighting system described in the steps above.
9. Joint Staff developed estimates of the evaluation budget needed to evaluate the impacts of each strategy by applying the 4% multiplier to each strategy budget.
10. Joint staff distributed the allocated impact and program effects study budgets first for the full three years, and then estimated the distribution across the three years as follows PY2006 = 20%, PY2007 = 30%, PY2008 = 50%. (See budget items 8.01 through 8.40 in Joint Staff budget spreadsheet—Table 1)
11. Joint Staff met with the utilities' program evaluation staff to review the budget for a contextual assessment and feedback on our budget estimates. The meeting participants reached the consensus opinion that while some individual evaluation budget line items might be too large or too small, in

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aggregate the overall impact and program effects budget appeared to provide a reasonably realistic estimate.

Based on a review of these factors, the Joint Staff and Utility Evaluation Leads concluded that the use of the 4% ratio was justified and likely to be a reasonable estimate given the uncertainties identified above.

Budgeting for specific evaluation projects and RFPs will be done on a project by project basis and will be based on a thorough analysis of the specific objectives of each project, the complexity of the market or customer group being targeted by the program, and the potential difficulty or ease of obtaining program data and project measurements.

Overarching and Policy Support Studies

Overview – Purpose of Studies and Budgeting Assumptions

Overarching studies will be designed to support program specific evaluations and future planning by gathering market level data on appliance and equipment sales, customer, and building characteristic data. We will use these data to improve our understanding of the baseline patterns of energy usage at the end use level and how programs may be affecting these patterns through the promotion of more efficient equipment or practices. In addition, these data are vital for use in forecasting future patterns of energy use and subsequent assessments of the potential to save energy in future years.

Policy support studies will be used to assess future program opportunities and evaluate the cost effectiveness of current and planned programs. We expect that policy support activities will include the standardized collection and dissemination of data on the characteristics, costs and expected savings from a wide variety of energy efficient measures and systems in the Database for Energy Efficient Resources (DEER.) This database serves a number of functions; in particular it provides standardized inputs for cost effectiveness analysis of programs and measures in the planning cycle.

Joint Staff estimated budgets for the overarching and policy support studies on a three year basis and then allocated to specific years based on the amount of work that we expect to be completed in each year. In some cases, work effort in the initial years are low because they reflect only the costs of coordinating

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studies inputs and outputs for use in a report to be completed in a subsequent year, such as the update of the Energy Efficiency Potential Analysis. More specifics on each budget estimate are provided below.

Budgeting Methodology for Overarching Studies

Joint Staff based the three year budget estimate of for the DEER on the following assumptions:

- DEER measure savings estimates would be updated annually by a DEER administrator hired by joint staff to review and potentially recommend proposed changes to the database from portfolio administrators or third parties based on the results of completed studies in 2006 and 2007. Joint Staff budgeted to review up to 40 changes in measure savings or incremental costs on an annual basis for two years.
- A comprehensive revision of DEER measure cost, useful life, load shapes, and energy saving estimates would be started in 2007 and completed in 2008 of the cycle. This budget includes the sum of the assumed costs to estimate average and targeted energy and peak savings for up to 200 measures, to estimate incremental measure costs and to estimate effective useful lives (EULs) over a four year period.
- Joint Staff will review and update these expectations after reviewing the DEER report that is expected to be finalized by the current DEER team in the next several weeks. At that time, we will have a more informed idea of what updating procedure, schedule and scope would help improve the usefulness of DEER for the purposes of program/portfolio planning, implementation and evaluation.

RASS, CEUS, and Industrial Surveys -

Per an agreement with Joint Staff, this budget has been moved to the utility budgets and removed from the Joint Staff budget. Estimating average savings for the DEER requires the collection of current data on the saturation and growth of appliance sales and building square footage as inputs. Three major equipment surveys are conducted on a three year cycle (as required by Title 20) to meet this need and to provide the data needed to develop comprehensive forecasts of electricity and natural gas demand. The budget for the data collection and survey projects were estimated based on previous contract costs for the RASS, CEUS and Industrial Process Surveys. Pursuant to changes in

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Title 20, the portfolio administrators will be given the option to manage these contracts in their service territory or work with CEC staff to collect the necessary data at the statewide level. These surveys also provide data necessary to complete the three year update of energy efficiency potential by service territory.

Energy Efficiency Potential Update –

Staff estimate our budget under the assumption that a contractor will be required to update each of four previous efficiency potential studies conducted in 2002 and 2003 for the residential, commercial, industrial and new construction sectors. This project will take advantage of all of the primary data collection efforts described in the paragraphs above and use diffusion modeling and other tools to estimate future potential and support future efforts to set energy savings goals. Staff estimated the cost of four studies at a total cost of \$3.6 million over the three year period. This compares to a cost for the previous generation of efficiency potential studies of roughly \$3 million.

Budgeting Methodology Policy Support Studies

The Commission has also set goals of integrating energy efficiency, demand response and distributed generation programs. To assess progress toward this goal we have allocated a budget to investigate the effectiveness of the portfolio administrator's efforts to integrate energy efficiency, demand response, bill feedback and distributed generation programs. This amount includes funds to interview customers and pilot test new approaches suggested by the research.

Finally we propose the funding level we consider necessary to complete a comprehensive and independent evaluation of the entire energy efficiency program planning and evaluation process from 2005 to mid 2008. This independent evaluation will provide an objective review of the process used by the Commission to establish portfolio administration and the extent to which the Commission's policy goals were realized. This evaluation should be performed by an outside organization, preferably a national laboratory or out of state consulting firm and provide the Commission with recommendations for how to improve the process that will be used during the 2009-2011 planning cycle.

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Description and Budgeting Methodology for those Market Effects and Market Assessment Studies to be Managed by Joint Staff (as distinct from those to be managed by Utilities)

The proliferation of program strategies in specific market segments alongside increased program portfolio budgets may make it more efficient in some cases to study the aggregate effects of these portfolio efforts by using a common data collection instrument. Staff's budget is based on the assumption that six separate market effect evaluations will be conducted over the next three years. These include market level studies for the residential retrofit, residential new construction, commercial new construction, commercial retrofit, industrial retrofit, and agricultural retrofit sectors.

Each report will gather primary data on equipment sales by efficiency level, practices observed in the installation of lighting and HVAC equipment systems, the use of automated or manual control systems, energy prices, output, and other indicators that affect the relative energy intensity of each sector. These inputs will be used to estimate the net and gross savings that can be attributed to programs operating in the market place and the extent to which programs or other influences have saturated key markets for efficient products. The net total savings estimate can also be compared to the sum of the program specific estimates of load impacts to help verify the net savings impacts and to understand the significance and magnitude of any potential spillover or free rider impacts.

Market Assessments –

Joint Staff budgeted to cover the expected cost of continuing to collect primary sales data on selected appliances and equipment, and periodically survey trade allies to gauge the success of training efforts to encourage the design and purchase of more efficient building systems. This budget assumes 3 major study efforts per year. These data collection efforts will be coordinated with more localized data collection and market research efforts managed by the portfolio administrators and used to help centralize data collection efforts for efficient products that are more easily shipped and tracked at the statewide level. All of the results will be made available to the portfolio administrators on a regular basis and used in support of the efficiency potential update.

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Joint Staff Recognize Various Factors May Necessitate Budget Revisions in Any of the Budget Categories

I. Potential Causes of Fluctuation in Program and Portfolio Evaluation Study Budgets

A. Factors that May Have Resulted in Overestimation

Reduction in Data Collection Requirements

One of the underlying assumptions behind the 4% average is that site or project specific data collection (e.g., equipment metering, billing analysis) will need to be conducted on a significant sample at least once during the three year cycle for all strategies. If some program strategies were not evaluated for impacts using site or project level data, (e.g., relying instead upon deemed savings with site verification) the ratio of evaluation to program budget could be lower (2-3%). However the Commission requirement for ex-post estimates for a number of parameters may not allow the use of deemed savings as an option.

Greater than Expected Economies of Scale

We estimate that a combined statewide evaluation approach as opposed to the service territory specific studies that have historically been conducted will yield economies of scale for the task of analysis (as distinct from data collection where economies of scale do not apply in this case) of approximately (e.g., cost of doing 1 study is cheaper than 4 separate studies for each service area.) If economies of scale are greater than amount we estimated, our budgets could be overestimated.

B. Factors that May Have Resulted in Underestimation

New Protocols

The new protocols currently under development are likely to require additional data collection and analysis to estimate peak savings. The protocols are also likely to require more analysis of potential bias in measurement methods and calculations to establish precision of savings results. In addition, the protocols are likely to require more sophisticated methods of estimating net to gross ratios than are represented in the 4% ratio. Finally, the protocols may require longer periods of data collection for both pre and post billing analysis.

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Smaller than Expected or Additional Programs

If there are a high number competitively solicited programs selected that are relatively small (i.e. \$500,000 to \$5 million annual budgets) in many instances they may require evaluation ratios of 5-7%. The same principle would hold should utilities rely more upon smaller programs or program strategies for which the previous study results are relatively less robust.

Should utilities choose to replace or augment programs in their existing portfolio with new program strategies, new technology, or new targeted market segments, we may need to increase our evaluation to program budget ratios.

Procedural and Policy Requirements

Joint Staff will have a higher expectation that evaluation contractors budget for an increased level of activities in the following areas: pre-study planning, in-process plan changes, coordination with multiple actors (utilities, Joint Staff, program implementers and other evaluators,) and revisions to studies and other forms of response stimulated and required by feedback from interested parties. It will also be more important that evaluators have technical writers/editors on hand so that evaluation results may be made more accessible to the layperson and policymaker.

Change in Emphasized Study Technique

An increased emphasis on Market Effects studies would likely result in a higher than 4% average as those studies tend to require more data collection, more sophisticated analytical tools and generally longer study periods.

II. Potential Causes of Fluctuation in Other Budget Categories

Several factors could influence changes to the funding that is necessary in the other two budget categories. Those factors include the following: increase in the funding necessary to perform studies in the Program and Portfolio Study category resulting from any of the above listed factors; lack of ability to secure new agency staffing; increased coordination and oversight costs; difficulty obtaining necessary data to perform Program and Portfolio Studies resulting in increased coordination and oversight costs; concerns about program implementer performance or expenditures resulting in increased oversight costs; frequent shifts in implementation emphasis between programs and sectors resulting in the need for increased coordination and re-

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scoping of portfolio and study specific evaluation plans; along with many other as-yet-unforeseen or unidentified factors.

Joint Staff Propose a Procedure for Refining Budgets and Notifying Interested Parties of Significant Changes to Evaluation Plans

Joint Staff propose that we use the following procedure for notifying parties of changes to our evaluation emphasis, the types of studies for which we are contracting, and their associated budgets as we refine and revise them.

Over the next few weeks/months, Joint Staff will convene meetings to develop scopes of work for evaluation projects at the program strategy and sectoral level. These meetings will be necessary to develop more specific plans and budgets for each grouping of programs based on a discussion of recent evaluation findings, the adopted (or if necessary draft) protocol requirements, the relative importance of the projected energy savings from each grouping, along with other factors.

After these plans are developed, we will seek approval from our respective agencies' management to release our priority Requests for Proposal (RFPs) containing the scopes of work that we determine necessary to release immediately. We will also begin to determine how we will develop and stage additional RFPs. All RFP's will be posted on a centralized website the location of which we will notice to parties and other solicitation lists.

Joint Staff will provide parties with regular reports (on the same time schedule as that required for program reporting – e.g. monthly or quarterly) that identify the studies that have been contracted out, those that we expect to contract for over the next quarter or two, and the expenditures and budgets associated with the listed studies.

Joint Staff Request Maximum Fund Shifting Flexibility

Joint Staff request that the Commission provide us with maximum flexibility in adjusting funding levels so that we can meet the Commission's objectives in the most efficacious and cost-efficient manner. We respectfully request that we be allowed the discretion to redirect evaluation efforts away from those study areas that are unneeded, to add study areas, and to move funding both among line items within the evaluation categories, as well as from one category to another. We also request that we be permitted to treat the evaluation budget

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as a multi-year budget and to continue expending funds collected for PY2006-2008 beyond the end of 2008 as our evaluation needs will require.

We ask that we be permitted the discretion to manage to the overall Commission objectives, rather than be held to individual budget items. In this way, Staff will be provided with the utmost opportunity to align our evaluation efforts and expenditures with the utilities' program and portfolio efforts and achievements such that we are able to fulfill the Commission's evaluation expectations.

Conclusion

Based upon our EM&V budget development process and review described above Joint Staff have concluded that our budget estimates have been as fully developed as they can be until we design specific scopes of work for individual studies. We ask for full fund-shifting flexibility in order to meet the Commission's evaluation objectives and to allow evaluation activities to prove fruitful even as the utilities change direction in an effort to meet their portfolio goals. We also ask to be granted the authority to add or remove study areas or budget items on an as needed basis.

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TABLE 1: Joint Staff EM&V Budget 2006-2008

Rev (10/12/05)

Budget Category and Line Number	Budget Item	2006	2007	2008	Total	% of Portfolio Budget	% of EM&V Budget
Adopted Portfolio Budget (Minus EM&V Allocation)*					\$ 1,968,762,439		
Total Portfolio Budget (Including this EM&V budget)*					\$ 2,131,557,268		
Allocated EM&V Budget per IOU Program Filings					\$ 163,335,553	7.66%	
Total EM&V Budget Request (Joint Staff and IOU)					\$ 162,794,829	7.64%	
IOU Managed Evaluation Projects					\$ 44,766,168	2.10%	27.50%
Joint Staff EM&V Project Budgets Total					\$ 118,028,661	5.54%	72.50%
IOU Managed Evaluation Projects					\$ 44,766,168	2.10%	27.50%
a	Pacific Gas and Electric				\$ 20,593,000	0.97%	12.65%
b	Southern California Edison				\$ 14,846,000	0.70%	9.12%
c	San Diego Gas and Electric				\$ 5,665,892	0.27%	3.48%
d	Southern California Gas				\$ 3,661,276	0.17%	2.25%
EM&V Management, Quality Assurance, and Implementation Support					\$ 19,793,661	0.93%	12.16%
1	Database Management Support (a)	\$ 1,600,000	\$ 1,000,000	\$ 1,050,000	\$ 3,650,000	0.17%	2.24%
1.1	Database Design and Infrastructure	\$ 1,000,000	\$ 250,000	\$ 250,000	\$ 1,500,000	0.07%	0.92%
1.2	Database Management	\$ 300,000	\$ 300,000	\$ 300,000	\$ 900,000	0.04%	0.55%
1.3	Data Coordination and Management	\$ 300,000	\$ 450,000	\$ 500,000	\$ 1,250,000	0.06%	0.77%
2	Technical Consultants to Joint Staff	\$ 2,900,000	\$ 2,600,000	\$ 2,600,000	\$ 8,100,000	0.38%	4.98%
2.1	Sample Design, Protocol Compliance and Plan	\$ 2,100,000	\$ 1,400,000	\$ 1,000,000	\$ 4,500,000	0.21%	2.76%
2.2	Report Review and Technical Support	\$ 300,000	\$ 450,000	\$ 600,000	\$ 1,350,000	0.06%	0.83%
2.3	Other Support	\$ 500,000	\$ 750,000	\$ 1,000,000	\$ 2,250,000	0.11%	1.38%
3	Financial and Management Audits (b)	\$ 1,000,000	\$ 1,000,000	\$ 1,500,000	\$ 3,500,000	0.16%	2.15%
4	Human Resource Development and Training	\$ 80,000	\$ 60,000	\$ 40,000	\$ 180,000	0.01%	0.11%
5	Additional State Staff (6 FTEs at \$150,000 each)	\$ 900,000	\$ 900,000	\$ 900,000	\$ 2,700,000	0.13%	1.66%
6	Energy Division Support (c)	\$ 262,887	\$ 262,887	\$ 262,887	\$ 788,661	0.04%	0.48%
7	Unforeseen EM&V Management Needs	\$ 175,000	\$ 262,500	\$ 437,500	\$ 875,000	0.04%	0.76%
Program and Portfolio Evaluation Studies					\$ 87,450,000	4.10%	53.72%
8	Impact and Program Effects Evaluations (d)	\$ 15,195,000	\$ 22,792,500	\$ 37,987,500	\$ 75,975,000	3.56%	46.67%
<i>Study Area Estimates</i>							
8.01	Nonresidential Building Calculated Rebate	\$ 1,360,000	\$ 2,040,000	\$ 3,400,000	\$ 6,800,000	0.32%	4.18%
8.02	Nonresidential Downstream Deemed Rebate	\$ 1,300,000	\$ 1,950,000	\$ 3,250,000	\$ 6,500,000	0.30%	3.99%
8.03	Residential Downstream Deemed Rebate	\$ 1,240,000	\$ 1,860,000	\$ 3,100,000	\$ 6,200,000	0.29%	3.81%
8.04	Nonresidential Audits	\$ 1,240,000	\$ 1,860,000	\$ 3,100,000	\$ 6,200,000	0.29%	3.81%
8.05	Residential Upstream Rebates	\$ 700,000	\$ 1,050,000	\$ 1,750,000	\$ 3,500,000	0.16%	2.15%
8.06	Nonresidential Building Commissioning	\$ 620,000	\$ 930,000	\$ 1,550,000	\$ 3,100,000	0.15%	1.90%
8.07	Nonresidential Energy Management Service	\$ 600,000	\$ 900,000	\$ 1,500,000	\$ 3,000,000	0.14%	1.84%
8.08	Nonresidential Process Calculated Rebate	\$ 460,000	\$ 690,000	\$ 1,150,000	\$ 2,300,000	0.11%	1.41%
8.09	Nonresidential Targeted Marketing	\$ 460,000	\$ 690,000	\$ 1,150,000	\$ 2,300,000	0.11%	1.41%
8.10	Nonresidential Upstream Training	\$ 440,000	\$ 660,000	\$ 1,100,000	\$ 2,200,000	0.10%	1.35%
8.11	Residential New Construction	\$ 420,000	\$ 630,000	\$ 1,050,000	\$ 2,100,000	0.10%	1.29%
8.12	Nonresidential New Construction	\$ 400,000	\$ 600,000	\$ 1,000,000	\$ 2,000,000	0.09%	1.23%
8.13	Mass Marketing (Statewide Marketing and	\$ 400,000	\$ 600,000	\$ 1,000,000	\$ 2,000,000	0.09%	1.23%
8.14	Nonresidential Direct Install	\$ 360,000	\$ 540,000	\$ 900,000	\$ 1,800,000	0.08%	1.11%
8.15	Nonresidential Downstream Training	\$ 340,000	\$ 510,000	\$ 850,000	\$ 1,700,000	0.08%	1.04%
8.16	Nonresidential Quality Installation	\$ 320,000	\$ 480,000	\$ 800,000	\$ 1,600,000	0.08%	0.98%
8.17	Residential Direct Install	\$ 320,000	\$ 480,000	\$ 800,000	\$ 1,600,000	0.08%	0.98%
8.18	Nonresidential Upstream Rebates	\$ 300,000	\$ 450,000	\$ 750,000	\$ 1,500,000	0.07%	0.92%
8.19	Nonresidential Building Design Assistance	\$ 300,000	\$ 450,000	\$ 750,000	\$ 1,500,000	0.07%	0.92%
8.20	Residential Targeted Marketing	\$ 300,000	\$ 450,000	\$ 750,000	\$ 1,500,000	0.07%	0.92%
8.21	Residential Appliance Early Retirement	\$ 280,000	\$ 420,000	\$ 700,000	\$ 1,400,000	0.07%	0.86%
8.22	Nonresidential Appliance Early Retirement	\$ 260,000	\$ 390,000	\$ 650,000	\$ 1,300,000	0.06%	0.80%
8.23	Residential Technology Commercialization	\$ 260,000	\$ 390,000	\$ 650,000	\$ 1,300,000	0.06%	0.80%
8.24	Nonresidential Financing	\$ 220,000	\$ 330,000	\$ 550,000	\$ 1,100,000	0.05%	0.68%
8.25	Residential Comprehensive HVAC	\$ 220,000	\$ 330,000	\$ 550,000	\$ 1,100,000	0.05%	0.68%
8.26	Nonresidential Technology Commercialization	\$ 200,000	\$ 300,000	\$ 500,000	\$ 1,000,000	0.05%	0.61%
8.27	Codes and Standards Advocacy, Training, and	\$ 200,000	\$ 300,000	\$ 500,000	\$ 1,000,000	0.05%	0.61%
8.28	Residential Comprehensive Driv	\$ 180,000	\$ 270,000	\$ 450,000	\$ 900,000	0.04%	0.55%
8.29	Residential Upstream Training (contractor,	\$ 180,000	\$ 270,000	\$ 450,000	\$ 900,000	0.04%	0.55%
8.30	Residential Audits	\$ 160,000	\$ 240,000	\$ 400,000	\$ 800,000	0.04%	0.49%
8.31	Residential Building Design Assistance	\$ 160,000	\$ 240,000	\$ 400,000	\$ 800,000	0.04%	0.49%
8.32	Residential Downstream Education (end-use	\$ 160,000	\$ 240,000	\$ 400,000	\$ 800,000	0.04%	0.49%
8.33	Nonresidential Benchmarking	\$ 140,000	\$ 210,000	\$ 350,000	\$ 700,000	0.03%	0.43%
8.34	Nonresidential Midstream Rebates	\$ 120,000	\$ 180,000	\$ 300,000	\$ 600,000	0.03%	0.37%
8.35	Residential Midstream Rebates	\$ 100,000	\$ 150,000	\$ 250,000	\$ 500,000	0.02%	0.31%
8.36	Residential Comprehensive Retrofit	\$ 100,000	\$ 150,000	\$ 250,000	\$ 500,000	0.02%	0.31%
8.37	Residential Quality Installation	\$ 100,000	\$ 150,000	\$ 250,000	\$ 500,000	0.02%	0.31%
8.38	Residential Financing	\$ 80,000	\$ 120,000	\$ 200,000	\$ 400,000	0.02%	0.25%
8.39	Residential Measure Giveaways	\$ 20,000	\$ 30,000	\$ 50,000	\$ 100,000	0.00%	0.06%
8.40	Unforeseen Impact and Effects Study Needs	\$ 175,000	\$ 262,500	\$ 437,500	\$ 875,000	0.04%	0.54%
9	Market Level Evaluation:	\$ 2,875,000	\$ 2,962,500	\$ 3,137,500	\$ 8,975,000	0.42%	5.51%
<i>Study Area Estimates</i>							
9.01	Market Effects Evaluations (e)	\$ 1,200,000	\$ 1,200,000	\$ 1,200,000	\$ 3,600,000	0.17%	2.21%
9.02	Market Assessment Evaluations (f)	\$ 1,500,000	\$ 1,500,000	\$ 1,500,000	\$ 4,500,000	0.21%	2.76%
9.03	Unforeseen Market Level Study Needs	\$ 175,000	\$ 262,500	\$ 437,500	\$ 875,000	0.04%	0.54%
10	Study Coordination and Results Reporting	\$ 500,000	\$ 1,000,000	\$ 1,000,000	\$ 2,500,000	0.12%	1.54%
Overarching and Policy Support Studies					\$ 10,785,000	0.51%	6.62%
11	DEER - Measure Impact and Measure Cost	\$ 300,000	\$ 1,800,000	\$ 300,000	\$ 2,400,000	0.11%	1.47%
12	DEER - EUL (Persistence and Relative	\$ 500,000	\$ 1,000,000	\$ 500,000	\$ 2,000,000	0.09%	1.23%
13	Technical Degradation) Update:	\$ 1,200,000	\$ 1,200,000	\$ 1,200,000	\$ 3,600,000	0.17%	2.21%
14	Energy Efficiency Potential Studies (g)	\$ 120,000	\$ 100,000	\$ 140,000	\$ 360,000	0.02%	0.22%
15	Study of EE/DR/renewables Integration (h)	\$ 50,000	\$ 150,000	\$ 150,000	\$ 350,000	0.02%	0.21%
16	Independent review of EM&V planning and implementation	\$ 400,000	\$ 400,000	\$ 400,000	\$ 1,200,000	0.06%	0.74%
17	Study Methodology and Protocol Update: (NTG/Smilover)	\$ 175,000	\$ 262,500	\$ 437,500	\$ 875,000	0.04%	0.54%

* This budget has been amended to reflect the portfolio budgets as adopted by the Commission in Decision 05-09-04

a. Program reports, evaluation data and document management

b. Assumed cost of approx. 400 K per audit

c. Statutorily mandated funding level for ED staff. PUC Code Sec.

d. Estimates based on projected distribution of portfolio budgets across program strategies. Estimates include impact evaluations and program effects evaluations for

e. Assumed cost of approx. 600K per sector

f. Assumed cost of approx. 500K per data

Assumed cost of approx. 1,200K per study x

g. three studies

h. Assumed cost of approx. 150K per study

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SOUTHERN CALIFORNIA GAS COMPANY PROPOSAL FOR PROGRAM PROCESS EVALUATIONS & MARKET ANALYSES 2006-2008 ENERGY EFFICIENCY PROGRAMS

Southern California Gas Company (SoCalGas) is requesting a total of \$13,313,731 for 2006-2008 EM&V. This represents the equivalent of 8 percent of SoCalGas' 2006-2008 energy efficiency program budget. The total EM&V budget will be administered as follows: \$9,652,455 for load impact and other studies to be managed by the CPUC/CEC Joint Staffs; and \$3,661,276 for SDG&E administered studies, which includes process evaluations, market analyses and studies required by California Title 20 Section 1343, Energy End User Data: Survey Plans, Surveys, and Reports.

Introduction

To provide continuous feedback to the 2006-2008 Energy Efficiency programs and improve the programs through the three-year cycle, SoCalGas proposes to conduct various process evaluations and utility/measure-specific market analysis to accomplish this goal. Additionally, SoCalGas will coordinate with the other California Investor Owned Utilities to conduct the studies required by California Title 20 over the next three years: Residential Appliance Saturation Study (RASS), Commercial End Use Study (CEUS) and the Industrial End Use Study (IEUS).

SoCalGas proposes to group programs base on target markets or customers to facilitate evaluations but still allowing for "program"-specific analyses as required. Some of the objectives for evaluation or analysis are:

- (1) to review the broad market segments and the programs being offered to help determine if the programs being offered are optimally designed; and
- (2) to determine if there are unnecessary overlaps between the programs, if significant parts of the market are being missed by the

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program designs, and/or if the targeted markets should be defined differently.

Since program funding will be for three years, feedback by the end of the first year would be beneficial for improvement of the program design for years 2 and 3. In order to meet this objective, SoCalGas anticipates beginning these studies approximately 6 months into the first program year. SoCalGas anticipates issuing evaluation RFPs that combine both Process Evaluations and Market Analysis for each of the groups identified, although additional RFPs may be developed to address unanticipated program needs through the program cycle. At this time, SoCalGas' proposed grouping of programs into Process Evaluations and Market Analysis is as follows:

Group 1: Residential Programs

- Home Energy Efficiency Survey
- Multi-Family Rebate Program
- Home Efficiency Rebate Program
- Similar Third Party & Partnership Programs selected through the RFP Process

Group 2: New Construction Programs (subset for residential and nonresidential)

A. Residential New Construction:

- Advanced Home Program

B. Nonresidential New Construction:

- Savings By Design SCG SCE Program
- Savings By Design SCG Muni Program
- Sustainable Communities Demo/City of Santa Monica
- Similar Third Party & Partnership Programs selected through the RFP Process

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Group 3: Commercial Programs

- Express Efficiency Rebate Program
- Local Business Energy Efficiency Program
- Education & Training Program
- Energy Efficiency Delivery Channel Innovation Program
- Similar Third Party & Partnership Programs selected through the RFP Process

Group 4: On-Bill Financing

Group 5: Statewide Programs: will include the following programs where projects are embarked on jointly with the other IOUs and other stakeholders:

- Codes & Standards Program
- Emerging Tech Program
- Statewide Marketing & Outreach
- Similar Third Party & Partnership Programs selected through the RFP Process

Group 6: Third Party & Partnership Programs: will include those winning third party programs and selected partnerships that don't logically fit into any of the other 5 groups. This group may be subdivided after the program selection process.

The accompanying Excel table is SoCalGas' total proposed budget by program category which includes all the process evaluation and market analysis and staffing. The proposed budget is organized according to these groupings and includes the cost of all process evaluations, market analysis and utility staffing cost.

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Process Evaluations

The process evaluation consists of in-depth examinations of the design, delivery, and operations of energy programs in order to improve the ability of the program to achieve energy savings and accomplish other program goals. *The California Evaluation Framework*¹ (Framework) defines a process evaluation as: *a systematic assessment of an energy efficiency program for the purposes of (1) documenting program operations at the time of examination, and (2) identifying and recommending improvements that can be made to the program to increase the program's efficiency or effectiveness for acquiring energy resources while maintaining high levels of participant satisfaction.*²

*Certainly, the primary reason for conducting process evaluations is to identify and recommend changes in a program's operational procedures or systems that can be expected to improve the program's efficiency or cost-effectiveness. These recommendations need to be developed so that they support the program or the program's operational practices consistent with the program theory or with recommended change to the program theory.*³

The goals of Process Evaluations, as articulated in Chapter 8 of the Framework, include:

- Improve program performance with respect to internal administration, promotional practices, program delivery, incentive levels, and data management,
- Provide information to regulators and other interested parties that energy programs are being implemented effectively and modified or refined as necessary,

¹ "The California Evaluation Framework," prepared for the California Public Utilities Commission and the Project Advisory Group, June 2004 by the Tec Market Works team.

² *Ibid.*, p. 207

³ *Ibid.*, p. 209.

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- Provide a means of improving customer satisfaction and identifying market threats and opportunities,
- Provides a means of contributing to industry-wide knowledge in order that other providers may improve their programs,
- Improve program implementation efficiency,
- Assess market segments and targeting of specific segments,
- Improve the quality of measures installed,
- Identify program design issues,
- Providing an accounting of program progress, and
- Examine special issues (measure life, program comprehensiveness, etc.)

SoCalGas will require familiarity with Chapter 8 of the Framework and address the issues identified there-in.

Market Analysis

In addition to the Process Evaluations, SoCalGas will be releasing RFPs for an independent market analysis to review the broad market segments and the programs being offered to help determine if the programs being offered are optimally designed. Market analysis will be specific to SoCalGas' service territory that may be more detailed than Market Assessments that are conducted by the Joint Staff on a statewide basis.

The market analysis will include but is not limited to:

- 1) baseline information,
- 2) identification of target markets,
- 3) in-depth study of energy efficiency measures,
- 4) interviews with market actors, and
- 5) suggestions on how to maximize these opportunities.

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Baseline information can be derived from existing literature, or if unavailable, through primary research. The goal of establishing the baseline is to determine the existing situation and designing program strategies to increase energy efficiency in the market.

Identification of target markets: successful programs have a clearly identified market they are targeting with the program. In order to help define the audience, market analysis can help to segregate the market into component parts that have differing needs and target the program appropriately. This usually requires primary market research and matching the needs and wants of consumers with the appropriate goods and services.

Market Analysis can also include in depth study of specific energy efficiency measures. As new measures become available in the market place, the analysis can be designed to give an independent evaluation of the savings associated with the new measure. Additionally, if existing measures are experiencing unforeseen problems, Market Analysis can examine the measure in detail in an attempt to get at the root causes of the issues.

In order to clearly understand the market place, interviews with the market actors (suppliers, distributors, contractors, retailers, customers, etc.) are an essential component of both Process Evaluations and Market Analysis. After the interviews are complete, the evaluator can devise a schematic of how the market supply chain is working and suggest ideal points for program intervention to increase energy efficiency into the market.

In addition to the above studies, the following Market Analysis studies are being contemplated for the 2006-2008 program years:

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SoCalGas Proposed 2006-2008 Specific Market Analysis Studies:

MARKET ANALYSIS STUDY	SEGMENT	NONRESIDENTIAL			RESIDENTIAL		STUDY QUESTIONS	BUDGET
		EXPRESS	EER	PER; CPI	SF/MF	HEES		
Gas Engine Water Pumping	Agricultural, Municipal	X	X	X			Determine market potential for gas engine refurbishment and replacement; and water pump refurbishment replacement.	\$15,000
Boiler Water Treatment	Healthcare; Ind. and Comm. Laundry; Schools	X	X	X			Assess market to determine availability of advanced water treatment technologies and applications beyond current standards/specifications, and market potential: Controllers; De-scale; Continuous Treatment.	\$15,000
HVAC Early Retirement	Comm.; Ind.; Res.	X	X		X		Determine Market potential of the early retirement of 60% efficient C&I and residential forced air furnaces beyond current standards/	\$20,000

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MARKET ANALYSIS STUDY	SEGMENT	NONRESIDENTIAL			RESIDENTIAL		STUDY QUESTIONS	BUDGET
		EXPRESS	EER	PER; CPI	SF/MF	HEES		
							specifications, and market potential	
Solar Water Heating Potential (water heating; pool heaters)	Comm.; Ind.; Res.; Pool Heaters				X (MF)		Determine market potential of solar water heating and pool heating and the appropriate market application based on cost effectiveness criteria.	\$10,000
Boiler Potential (Resets, Cut-offs)	Comm.; Ind.	X			X (MF)		As suggested from the TecMarket Group to assess the incremental energy savings that might be derived from boiler 'reset' and 'cut-off' strategies/ technology	\$15,000
Insulation Potential	Comm.; Ind.; Res.	X			X (MF)		Assess market to determine availability of advanced insulation technologies/ materials beyond current standards/specifications, and	\$10,000

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MARKET ANALYSIS STUDY	SEGMENT	NONRESIDENTIAL			RESIDENTIAL		STUDY QUESTIONS	BUDGET
		EXPRESS	EER	PER; CPI	SF/MF	HEES		
							market potential.	
Coin Laundry Potential	Comm.; Res.	X			X (MF)		Assess market to determine availability of advanced coin laundry equipment and applications beyond current standards/specifications, and market potential.	\$20,000
92% AFUE Condensing Furnaces	Residential				X (SF)		As suggested from the TecMarket Group to assess the market potential for 92% AFUE Furnaces and the incremental energy savings that might be derived and the appropriate market application based on cost effectiveness criteria.	\$10,000
ECM motors - Furnaces	Residential				X (SF)		As suggested from the TecMarket Group to assess the market potential for ECM (variable speed motors) in	\$10,000

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MARKET ANALYSIS STUDY	SEGMENT	NONRESIDENTIAL			RESIDENTIAL		STUDY QUESTIONS	BUDGET
		EXPRESS	EER	PER; CPI	SF/MF	HEES		
							Furnaces and the incremental energy savings that might be derived, as well as the appropriate market application based on cost effectiveness criteria.	
Clothes Dryers	Residential				X (SF)		Assess market to determine availability of advanced clothes dryer equipment and applications beyond current standards/specifications, and market potential.	\$10,000
Customer adoption of EE measures	Comm.; Residential	X				X	Evaluate potential energy savings that can be captured as a result of customer adoption of energy efficiency measures/actions as a result of IOU survey participation/recommendations	\$20,000

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CWH/boiler Controllers	Comm.; Residential					X (MF)		Assess market to determine availability of controller products, standards/specifications, appropriate market application and energy savings potential.	\$20,000
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SoCalGas EM&V Staffing Requirements

SoCalGas will require staffing in order to facilitate the needs of the selected EM&V Process Evaluation and Market Assessment contractors and contract management, provide required data by the Load Impact contractors selected by the Joint Staff, answer data requests from outside parties, participate in CPUC sponsored workshops and forums, provide annual, and monthly/quarterly regulatory status reports, provide cost-effectiveness calculations, oversee Statewide Studies and provide feedback to program implementers.

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**SAN DIEGO GAS & ELECTRIC COMPANY
PROPOSAL FOR PROGRAM PROCESS EVALUATIONS & MARKET ANALYSES
2006-2008 ENERGY EFFICIENCY PROGRAMS**

San Diego Gas & Electric (SDG&E) is requesting a total of \$20,603,245 for 2006-2008 Evaluation, Measurement & Verification (EM&V). This represents the equivalent of 8 percent of SDG&E's 2006-2008 energy efficiency program budget. The total EM&V budget will be administered as follows: \$14,937,353 for load impact and other studies to be managed by the CPUC/CEC Joint Staffs; and \$5,665,892 for SDG&E administered studies, which includes process evaluations, market analyses and studies required by California Title 20 Section 1343, Energy End User Data: Survey Plans, Surveys, and Reports.

Introduction

To provide continuous feedback to the 2006-2008 Energy Efficiency programs and improve the programs through the three-year cycle, SDG&E proposes to conduct various process evaluations and utility/measure-specific market analysis to accomplish this goal. Additionally, SDG&E will coordinate with the other California Investor Owned Utilities to conduct the studies required by California Title 20 over the next three years: Residential Appliance Saturation Study (RASS), Commercial End Use Study (CEUS) and the Industrial End Use Study (IEUS). In order to manage these studies, SDG&E is requesting 2.2% of the 2006-2008 Energy Efficiency Portfolio budget, or 27.5% of the EM&V budget for the three years.

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SDG&E proposes to group programs base on target markets or customers to facilitate evaluations but still allowing for “program”-specific analyses as required. Some of the objectives for evaluation or analysis are:

- (1) to review the broad market segments and the programs being offered to help determine if the programs being offered are optimally designed;
- (2) to determine if there are unnecessary overlaps between the programs, if significant parts of the market are being missed by the program designs, and/or if the targeted markets should be defined differently

Since program funding will be for three years, feedback by the end of the first year would be beneficial for improvement of the program design for years 2 and 3. In order to meet this objective, SDG&E anticipates beginning these studies approximately 6 months into the first program year. SDG&E anticipates issuing evaluation RFPs that combine both Process Evaluations and Market Analysis for each of the groups identified, although additional RFPs may be developed to address unanticipated program needs through the program cycle. At this time, SDG&E’s proposed grouping of programs into Process Evaluations and Market Analysis is as follows:

Group 1: Residential Programs

- Lighting Exchange and Education
- Residential Customer Ed & Information
- Limited Income Refrigerator Replacement
- Multi-Family Rebate Program
- Single Family Rebate Program
- Upstream Lighting Program
- Similar Third Party Programs selected through the RFP Process

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Group 2: New Construction Programs (subset for residential and nonresidential)

A. Residential New Construction:

- Advanced Home Program

B. Nonresidential New Construction:

- Sustainable Communities Program
- Savings By Design
- Similar Third Party Programs selected through the RFP Process

Group 3: Partnership Programs

- City of Chula Vista Partnership
- County of San Diego Partnership
- San Diego Co. Water Authority Partnership
- City of San Diego Partnership
- SDREO Energy Resource Center Partnership
- Similar Third Party Programs selected through the RFP Process

Group 4: Commercial Programs

- Energy Savings Bids
- Express Efficiency Rebate Program
- Small Business Super Saver
- Standard Performance Program
- Similar Third Party Programs selected through the RFP Process

Group 5: On-Bill Financing

Group 6: Statewide Programs: will include the following programs where projects are embarked on jointly with the other IOUs and other stakeholders. It is

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anticipated that this Group will be coordinated with the other stakeholders and may be subdivided into multiple studies:

- Codes & Standards Program
- IOU/Community College Partnership
- CA Department of Corrections Partnership
- IOU/UC/CSU Partnership
- Emerging Tech Program
- Statewide Marketing & Outreach
- Similar Third Party Programs selected through the RFP Process

Group 7: Third Party Programs: will include those winning third party programs that don't logically fit into any of the other 6 groups.

The accompanying Excel table is SDG&E's proposed budgets for each of the process evaluation and market analysis and staffing.

Process Evaluations

The process evaluation consists of in-depth examinations of the design, delivery, and operations of energy programs in order to improve the ability of the program to achieve energy savings and accomplish other program goals. *The California Evaluation Framework*¹ (Framework) defines a process evaluation as: *a systematic assessment of an energy efficiency program for the purposes of (1) documenting program operations at the time of examination, and (2) identifying and recommending improvements that can be made to the*

¹ "The California Evaluation Framework," prepared for the California Public Utilities Commission and the Project Advisory Group, June 2004 by the Tec Market Works team.

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program to increase the program's efficiency or effectiveness for acquiring energy resources while maintaining high levels of participant satisfaction.²

Certainly, the primary reason for conducting process evaluations is to identify and recommend changes in a program's operational procedures or systems that can be expected to improve the program's efficiency or cost-effectiveness. These recommendations need to be developed so that they support the program or the program's operational practices consistent with the program theory or with recommended change to the program theory.³

The goals of Process Evaluations, as articulated in Chapter 8 of the Framework, include:

- Improve program performance with respect to internal administration, promotional practices, program delivery, incentive levels, and data management,
- Provide information to regulators and other interested parties that energy programs are being implemented effectively and modified or refined as necessary,
- Provide a means of improving customer satisfaction and identifying market threats and opportunities,
- Provides a means of contributing to industry-wide knowledge in order that other providers may improve their programs,
- Improve program implementation efficiency,
- Assess market segments and targeting of specific segments,
- Improve the quality of measures installed,
- Identify program design issues,

² *Ibid.*, p. 207.

³ *Ibid.*, p. 209.

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- Providing an accounting of program progress, and
- Examine special issues (measure life, program comprehensiveness, etc.)

SDG&E will require familiarity with Chapter 8 of the Framework and address the issues identified there-in.

Market Analysis

In addition to the Process Evaluations, SDG&E will be releasing RFPs for an independent market analysis to review the broad market segments and the programs being offered to help determine if the programs being offered are optimally designed. Market analysis will be specific to SDG&E's service territory that may be more detailed than Market Assessments that are conducted by the Joint Staff on a statewide basis.

The market analysis will include but is not limited to:

- 1) baseline information,
- 2) identification of target markets,
- 3) in-depth study of energy efficiency measures,
- 4) interviews with market actors, and
- 5) suggestions on how to maximize these opportunities.

Baseline information can be derived from existing literature, or if unavailable, through primary research. The goal of establishing the baseline is to determine the existing situation and designing program strategies to increase energy efficiency in the market.

Identification of target markets: successful programs have a clearly identified market they are targeting with the program. In order to help define the audience, market analysis can help to segregate the market into component parts that have differing needs and target the program appropriately. This usually requires primary

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market research and matching the needs and wants of consumers with the appropriate goods and services.

Market Analysis can also include in depth study of specific energy efficiency measures. As new measures become available in the market place, the analysis can be designed to give an independent evaluation of the savings associated with the new measure. Additionally, if existing measures are experiencing unforeseen problems, Market Analysis can examine the measure in detail in an attempt to get at the root causes of the issues.

In order to clearly understand the market place, interviews with the market actors (suppliers, distributors, contractors, retailers, customers, etc.) are an essential component of both Process Evaluations and Market Analysis. After the interviews are complete, the evaluator can devise a schematic of how the market supply chain is working and suggest ideal points for program intervention to increase energy efficiency into the market.

In addition to the above studies, the following Market Analysis studies listed in the following table are some of the studies contemplated for the 2006-2008 program years. The budgets for these studies are included in the total budget:

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SDG&E Proposed 2006-2008 Specific Market Analysis Studies:

MARKET ANALYSIS STUDY	SEGMENT	NONRESIDENTIAL				RESIDENTIAL	STUDY QUESTIONS	PROPOSED BUDGET
		EXPRESS	EER	PER; CPI		SF/MF	HEES	
Gas Engine Water Pumping	Agricultural; Municipal	X	X	X			Determine market potential for gas engine refurbishment and replacement; and water pump refurbishment replacement.	\$15,000
Boiler Water Treatment	Healthcare; Ind. and Comm. Laundry; Schools	X	X	X			Assess market to determine availability of advanced water treatment technologies and applications beyond current standards/specifications, and market potential: Controllers; De-scale; Continuous Treatment.	\$15,000

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HVAC Early Retirement	Comm.; Ind.; Res.	X	X		X		Determine Market potential of the early retirement of 60% efficient C&I and residential forced air furnaces beyond current standards/specifications, and market potential	\$20,000
Solar Water Heating Potential (water heating; pool heaters)	Comm.; Ind.; Res.; Pool Heaters				X (MF)		Determine market potential of solar water heating and pool heating and the appropriate market application based on cost effectiveness criteria.	\$10,000
Boiler Potential (Resets, Cut-offs)	Comm.; Ind.	X			X (MF)		As suggested from the TecMarket Group to assess the incremental energy savings that might be derived from boiler 'reset' and 'cut-off' strategies/technology	\$15,000

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Insulation Potential	Comm.; Ind.; Res.	X			X (MF)		Assess market to determine availability of advanced insulation technologies/materials beyond current standards/specifications, and market potential.	\$10,000
Coin Laundry Potential	Comm.; Res.	X			X (MF)		Assess market to determine availability of advanced coin laundry equipment and applications beyond current standards/specifications, and market potential.	\$20,000
92% AFUE Condensing Furnaces	Residential				X (SF)		As suggested from the TechMarket Group to assess the market potential for 92% AFUE Furnaces and the incremental energy savings that might be derived and the appropriate market application based on cost effectiveness criteria.	\$10,000

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ECM motors – Furnaces	Residential					X (SF)		As suggested from the TecMarket Group to assess the market potential for ECM (variable speed motors) in Furnaces and the incremental energy savings that might be derived, as well as the appropriate market application based on cost effectiveness criteria.	\$10,000
Clothes Dryers	Residential					X (SF)		Assess market to determine availability of advanced clothes dryer equipment and applications beyond current standards/specifications, and market potential.	\$10,000
Customer adoption of EE measures	Comm.; Residential	X X				X	X	Determine current local market saturation of each itemized EE measure. Evaluate potential energy	\$20,000

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						savings that can be captured as a result of customer adoption of energy efficiency measures/ actions as a result of IOU survey participation/recommendations	
Lighting Floor Stock	Residential			X		Assess market to determine availability of energy efficient lighting products and applications beyond current standards/ specifications, and market potential.	50,000
Appliance Floor Stock	Residential			X		Assess market to determine availability of energy efficient appliances beyond current standards/ specifications, and market potential. What is the available floor stock and sales associated with higher standard appliances?	50,000

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CWH/boiler Controllers	Comm.; Residential					X (MF)		Assess market to determine availability of controller products, standards/specifications, appropriate market application and energy savings potential.	\$20,000
Laundry Ozonation	Commercial							Determine market potential of ozonation for commercial clothes cleaning. Evaluate cost effectiveness.	50,000
Gas Engine Driven Heat Pump for Greenhouses	Commercial, Industrial							Determine market potential for gas engine driven heat pumps in agricultural greenhouse applications.	50,000
Commercial Cooking Equipment	Commercial							Evaluate market penetration potential for selected gas and electric cooking equipment.	50,000

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SDG&E & EM&V Staffing Requirements

SDG&E will require staffing in order to facilitate the needs of the selected EM&V Process Evaluation and Market Assessment contractors and contract management, provide required data by the Load Impact contractors selected by the Joint Staff, answer data requests from outside parties, participate in CPUC sponsored workshops and forums, provide annual, and monthly/quarterly regulatory status reports, provide cost-effectiveness calculations, oversee Statewide Studies and provide feedback to program implementers.

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**Table 2 SOUTHERN CALIFORNIA GAS COMPANY
2006-2008 EVALUATION, MEASUREMENT AND VERIFICATION BUDGET**

Sector	Proposed 3-Yr Group EM&V Budget	Group	Program	2006	2007	2008	Total 3-yr Budget
Residential		1	Home Energy Efficiency Survey	\$ 11,310	\$ 11,310	\$ 13,195	\$ 35,815
Residential		1	Multi-Family Rebate Program	\$ 47,125	\$ 56,550	\$ 75,401	\$ 179,076
Residential	\$582,470	1	Home Efficiency Rebate Program	\$ 84,826	\$ 113,101	\$ 169,651	\$ 367,578
Res New Construction		2	Advanced Home Program	\$ 42,413	\$ 56,550	\$ 65,976	\$ 164,939
Non-Res New Construction		2	Savings By Design SCG SCE Program	\$ 28,275	\$ 47,125	\$ 65,976	\$ 141,376
Non-Res New Construction		2	Savings By Design SCG Muni Program	\$ 18,850	\$ 18,850	\$ 18,850	\$ 56,550
Non-Res New Construction	\$379,831	2	Sustainable Communities Demo/City of Santa Monica	\$ 5,655	\$ 5,655	\$ 5,655	\$ 16,965
Non-Residential		3	Express Efficiency Rebate Program	\$ 100,058	\$ 144,750	\$ 171,804	\$ 416,612
Non-Residential		3	Local Business Energy Efficiency Program	\$ 115,688	\$ 175,761	\$ 214,620	\$ 506,069
Non-Residential		3	Education & Training Program	\$ 33,930	\$ 43,355	\$ 44,298	\$ 121,584
Non-Residential	\$1,100,815	3	Energy Efficiency Delivery Channel Innovation Prog	\$ 18,850	\$ 18,850	\$ 18,850	\$ 56,550
Other	\$70,688	4	On-Bill Financing for Energy Efficiency Equipment	\$ 23,563	\$ 23,563	\$ 23,563	\$ 70,688
Other	\$226,202	5	Partnership Programs	\$ 75,401	\$ 75,401	\$ 75,401	\$ 226,202
Other		6	Codes & Standards Program	\$ 5,655	\$ 5,655	\$ 5,655	\$ 16,965
Other		6	Emerging Tech Program	\$ 18,850	\$ 18,850	\$ 18,850	\$ 56,550
Other	\$187,354	6	SW Marketing & Outreach	\$ 37,946	\$ 37,946	\$ 37,946	\$ 113,839
Other	\$636,840	7	Third Party Programs	\$ 167,099	\$ 213,319	\$ 256,422	\$ 636,840
	\$477,077	NA	RASS, CEUS, & IEUS Overarching EM&V	\$ 142,480	\$ 163,554	\$ 171,043	\$ 477,077
	\$3,661,276		IOU 27.5% of EM&V Budget (2.2% of 8.0%)	\$ 977,974	\$ 1,230,146	\$ 1,453,155	\$ 3,661,276

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Table 3 SAN DIEGO GAS & ELECTRIC COMPANY

Sector	Proposed 3-Yr Group EM&V Budget	Group	Program	2006	2007	2008	Total 3-yr Budget
Residential		1	Lighting Exchange and Education	\$ 9,579	\$ 9,899	\$ 10,222	\$ 29,701
Residential		1	Res Customer Ed & Information	\$ 15,160	\$ 13,887	\$ 13,065	\$ 42,112
Residential		1	Limited Income Refrigerator Replacement	\$ 20,892	\$ 20,892	\$ 20,892	\$ 62,675
Residential		1	Multi-Family Rebate Program	\$ 41,288	\$ 43,268	\$ 45,297	\$ 129,853
Residential		1	Single Family Rebate Program	\$ 47,260	\$ 49,461	\$ 50,581	\$ 147,302
Residential	\$734,980	1	Upstream Lighting Program	\$ 98,561	\$ 107,769	\$ 117,008	\$ 323,338
Res New Construction		2	Advanced Home Program	\$ 42,400	\$ 42,400	\$ 42,400	\$ 127,201
Non-Res New Construction		2	Sustainable Communities Program	\$ 7,565	\$ 10,995	\$ 13,908	\$ 32,469
Non-Res New Construction	\$420,212	2	Savings By Design	\$ 63,671	\$ 80,950	\$ 115,921	\$ 260,541
Partnership		3	City of Chula Vista Partnership	\$ 14,006	\$ 14,006	\$ 14,006	\$ 42,017
Partnership		3	County of San Diego Partnership	\$ 6,015	\$ 6,322	\$ 6,609	\$ 18,947
Partnership		3	San Diego Co. Water Authority Partnership	\$ 13,889	\$ 13,487	\$ 13,564	\$ 40,940
Partnership		3	City of San Diego Partnership	\$ 17,625	\$ 18,810	\$ 18,810	\$ 55,246
Partnership	\$236,300	3	SDREO Energy Resource Center Partnership	\$ 25,926	\$ 25,905	\$ 27,320	\$ 79,151
Non-Residential		4	Energy Savings Bids	\$ 224,777	\$ 313,558	\$ 437,613	\$ 975,948
Non-Residential		4	Express Efficiency Rebate Program	\$ 59,053	\$ 63,482	\$ 68,243	\$ 190,778
Non-Residential		4	Small Business Super Saver	\$ 183,512	\$ 197,275	\$ 212,071	\$ 592,858
Non-Residential		4	Standard Performance Program	\$ 64,803	\$ 69,663	\$ 74,887	\$ 209,353
Non-Residential	\$1,968,937	5	On-Bill Financing for Energy Efficiency Equipment	\$ 23,947	\$ 23,947	\$ 23,947	\$ 71,841
Non-Residential	\$71,841	6	Codes & Standards Program	\$ 7,663	\$ 7,663	\$ 7,663	\$ 22,989
Other		6	IOU/Community College Partnership	\$ 38,315	\$ 38,315	\$ 38,315	\$ 114,945
Other		6	CA Department of Corrections Partnership	\$ 7,663	\$ 7,663	\$ 7,663	\$ 22,989
Other		6	IOU/UC/CSU Partnership	\$ 38,315	\$ 38,315	\$ 38,315	\$ 114,945
Other		6	Emerging Tech Program	\$ 26,112	\$ 26,112	\$ 26,112	\$ 78,335
Other	\$514,806	6	SW Marketing & Outreach	\$ 53,534	\$ 53,534	\$ 53,534	\$ 160,602
Other	\$986,769	7	Third Party Programs	\$ 287,882	\$ 324,395	\$ 374,492	\$ 986,769
	\$732,047	NA	RASS, CEUS, & IEUS Overarching EM&V	\$ 241,530	\$ 244,726	\$ 245,792	\$ 732,047
	\$5,665,892		IOU 27.5% of EM&V Budget (2.2% of 8.0%)	\$ 1,680,941	\$ 1,866,701	\$ 2,118,251	\$ 5,665,892

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Southern California Edison
Detailed 2006-8 Budget Request
for Utility-Managed Evaluation, Measurement, and Verification Activities

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Funding Principles and Overall Funding Request

SCE evaluation staff members have worked with staff members of the Energy Division and the California Energy Commission (Joint Staff) and the evaluation staffs of the other three utilities to agree on overall budgets and funding principles for 2006-8 Evaluation, Measurement and Verification (EM&V) funding.

As a result of this work, SCE requests that its proposed EM&V funding of \$53,986,560, be allocated in the amounts of 27.5% to utility-managed activities and 72.5% to activities managed by Joint Staff. This proportional allocation will be the same for all utilities and will be changed only upon agreement of the representatives of joint staff and the four utilities. The proposed SCE study and activity budgets that result in this funding request are described in the following sections.

This request is for a three-year budget. Joint Staff and the utilities agree that unspent funds will be forward or carried back from year to year within the period as necessary, and that they will be carried over into years after 2008 in order to conduct and complete evaluations of 2006-8 programs and other 2006-8 studies as necessary.

The specific studies and activities and their budget levels provided here are SCE's best estimates at this point in time for the evaluation and analysis needs over the next three years. Past experience demonstrates that over such periods of time, study needs often change. Scope of work and therefore costs of specified studies may change to meet new or different information needs. Studies involving similar areas may be combined, or aspects of a proposed study may be found to benefit from being separated out. Whole new studies may be found to be needed, and previously identified studies may fall lower in priority. Budget flexibility is critical to allow for changing study and analysis priorities and needs. Consequently, SCE requests that the long-time practice of permitting full flexibility in the specific allocation of EM&V funding be continued for 2006-8.

Quarterly and annual reporting on study status and budgets will allow for tracking of SCE's EM&V activity. Joint Staff will also be informed by the utilities' continuing coordination with the Staff and their evaluation contractors.

SCE's detailed budget estimates for utility-managed EM&V activities are provided in the spreadsheet that accompanies this document. Descriptions of various areas included in the budget estimates are provided in the sections below, in the same order as they appear in the spreadsheet.

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Program-Level Process Evaluations, Market Analyses, and Measurement & Verification/Baseline Analyses

General Description – Process Evaluations

Process evaluations review the design and operation of programs to determine their effectiveness and their efficiency and to provide recommendations for program improvements.

Virtually all of the programs in SCE's 2006-8 portfolio are either new programs or programs that have significant modifications from their previous design. Consequently, SCE will conduct one or more process evaluations for every program in the portfolio. Some of these evaluations will analyze a group of related programs, in order to assess their linkages, explore their single and grouped impact on the markets they affect, compare their methods to find best practices, and reduce contracting and analysis costs.

Process evaluations will be particularly important for deciding whether to continue new and pilot programs and for providing some of the information needed to improve the design and operations of these programs. Examples of such programs include retro-commissioning, the new approaches to local government partnerships, and pilot programs such as on-bill financing and the programs selected in SCE's IDEEA and INDEE Programs (Innovative Designs for Energy Efficiency Activities and new technologies programs).

General Description -- Program-Linked Market Analysis Studies

The budgets for market analyses related to SCE programs allow for analyses of particular markets central to the operation of specific SCE program and program components, such as emerging technologies, financing, building and industrial process maintenance services and practices, and structure and practices in the building construction, sale, and rental markets. With the increased focus on emerging technologies, analyses of the market potential of program candidate technologies will be particularly important.

General Description – Early Measurement & Verification/Baseline/Internal Quality Control and Process Improvement Activities

A particular focus of not only SCE's process evaluation consulting contracts but also internal work in 2006-8 will be quality control and process improvement. Given the demanding goals and preeminent role that the state has established for energy efficiency programs, it is vital that programs efficiently deliver the full savings of which they are capable. Early, small-sample measurement and verification (M&V) efforts including collection of baseline data are needed to assure that ex ante energy savings estimates are being achieved, and if they are not, whether and how achieved savings can be increased. SCE is establishing a quality control/process improvement oversight function within its energy efficiency organization. This internal function will monitor and identify needed changes in equipment installation practices, program eligibility

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rules and enforcement, streamlining of program processes, and accuracy and completeness of program data tracking. Funding in this area will cover internal staffing plus engineering contracts to conduct early measurement and verification and baseline analyses to provide early feedback to program managers on whether their program energy savings assumptions are being met.

SCE 2500: Appliance Recycling Program

The process evaluation and market analysis can be particularly helpful in ascertaining any start-up issues, especially with the new room air conditioner recycling component of the program and the use of new partnerships with the program. In addition, the study Building on the 2004-05 evaluation, the process evaluation for the 2006-08 program will continue evaluating the effectiveness of the program by:

- 1) Monitoring the feasibility of reaching program goals using snapshots of program achievements in different points in time, including the age mix of recycled units;
- 2) Evaluating the effectiveness of the increased rebate amount for freezers on the rate and amount of freezer recycling;
- 3) Assessing the effectiveness of room air conditioner recycling;
- 4) Assessing the linkages of the program with the residential audits program, residential and multifamily energy efficiency rebate programs, partnerships, and retailers and the mutual impacts of these linkages;
- 5) Evaluating the impact of the program on educating customers to dispose of secondary units and replace inefficient units;
- 6) Measuring customer experience and satisfaction with the entire process of scheduling and pick up of the unit;
- 7) Assessing program processes for quality assurance and efficiency

For early feedback a phased process evaluation approach will be needed, with the first phase to start in 2006 followed by a second phase in 2007. The process evaluation and market analysis will not only use program-gathered data such as quality assurance surveys but will also collect data from follow-up surveys with participating and nonparticipating customers, retailers, and entities with which the program partners with for increased program participation. Using the gathered data, critical program elements and functions will be analyzed in depth and an assessment will be made of how they could be improved upon for program success.

SCE 2501: Residential Energy Efficiency Incentive Program

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This program is offering a much expanded point of sale (POS) program strategy and a cross-promotion element that will need to be assessed. A new electronic rebate application is being introduced to supplement the ease of program participation put in place through the POS strategy. The new and existing program elements and their implementation strategies will need to be assessed through a process evaluation and market assessment in 2006 that will:

- 1) Assess customer satisfaction with the program's delivery process, including POS and on-line applications, the installed measures, bill savings and other aspects of the program process;
- 2) Assess product availability and exposure at the retail level;
- 3) Measure awareness of energy efficiency in general and energy efficiency products and the program – elements that are essential to program success;
- 4) Evaluate the program in terms of integrated marketing and program delivery coordination with retailers and manufacturers;
- 5) Assess program processes in place for quality assurance;
- 6) Evaluate the effectiveness of program linkages with the residential audits and the appliance recycling program and the mutual impacts of these linkages; and
- 7) Assess the success of gathering POS customer contact information for use in follow-up surveys

A critical part of gathering the data to achieve many of the objectives above is the ability to survey participants and non-participants. Given the POS strategy, the program is planning to implement a customer contact gathering procedure that will be in place until such information is sufficient to generate a reasonable sample of participating customers for EM&V follow-up. Non-participant surveys will be based on the usual approaches such as random digit dialing. Other aspects of the process and market evaluation will involve data collection at retailer sites and interviews with retailers and manufacturers. A follow-up process evaluation will need to take place at the end of 2007 to determine the overall program effectiveness and implications for 2008 and beyond.

Early M&V/baseline analysis/quality assurance will monitor the energy savings being achieved by data gathered through the participant telephone surveys, with the addition of limited on-site data collection if necessary.. The program management will be promptly informed of information that indicates ex ante energy savings estimates are not being achieved or any other problems with the program.

SCE 2502: Multifamily Energy Efficiency Rebate Program

The program is mostly continuing its previous program strategy with some new aspects such as incorporating a mobile home strategy and efforts towards increased program exposure to contractor networks and multifamily trade circles. The 2004-05 EM&V will be available this

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year that includes a detail process evaluation of the program and will be helpful to inform the beginning part of the 2006 program. A tripled funding level for this program necessitates the need to inform the program process early and monitor the progress of the program towards meeting the target goals. Specific objectives of the SCE EM&V activities will include:

- 1) Identify issues with program recruitment and/or participation rates that need to be addressed in a timely fashion to help the program meet its goals;
- 2) Assess the barriers faced by contractors that have participated in the program and potentially can participate in the program;
- 3) Examine the effectiveness of delivery structure and any innovative approaches taken for marketing and outreach;
- 4) Identify and evaluate the opportunities for improving coordination and cooperation with multifamily market actor to promoting the program;
- 5) Assess satisfaction of tenants/contractors/property owners with the installed measures, bill savings, rebate processing and other aspects of the program process;
- 6) Evaluate the effectiveness of program linkages with the appliance rebate program and the mutual impacts of these linkages;
- 7) Assess program processes in place for quality assurance; and
- 8) Begin gathering data onsite for small samples of program installations and analyze it to determine whether expected energy savings are actually being achieved and what can be done to increase energy savings.

To support the measurement, evaluation, and analysis, several sources of data and information will need to be collected including, follow-up surveys with contractors, multifamily and mobile home park property managers, tenants, and other market actors toward whom the program's marketing and outreach efforts have been directed.

SCE 2503: Home Energy Efficiency Survey Program (HEES)

HEES is an established program with new linkages and follow-up being established in 2006-8. Process evaluations will be conducted to maintain and refine program processes, and will occur both early and at the end of the program cycle. Process evaluation will likely: 1) document program processes and compare them against the program logic model, 2) assess whether any steps in the audit process might be improved and recommend changes; 3) assess success of the program in leading customers to other energy efficiency programs; and 4) assess success of marketing efforts for the program. A participant survey will collect data for process evaluation, early M&V/baseline analysis and market analysis. One focus will be on the extent to which participants' energy efficiency actions occur through referral to rebate programs and the extent to which actions are taken outside of other programs. Relative customer receptiveness to various

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types of recommendations and the reasons for variances will be explored. Market analysis will also explore whether the program components should be targeted to different groups.

SCE 2504: Integrated Schools

Activity in the three constituent programs will be monitored to determine when it makes sense to begin evaluation and analysis activities. The LivingWise program is capable of recruiting and carrying out program activities during a single semester, so it may have enrolled classes as early as Spring 2006. Green Schools and Green Campuses require some recruiting and preparation time and are best run for an entire school year. Consequently, these latter two programs will likely come into full force in the 2006-7 school year. LivingWise and Green Schools have been offered in SCE's service territory before and have been evaluated. Green Campuses is new and will particularly benefit from both process evaluation and market analysis to guide its development.

Process evaluation for LivingWise will begin in the final month of the first semester in which LivingWise is offered to a significant number of classrooms. The evaluation will assess recruitment processes and teacher satisfaction with all aspects of the program. Contact with students' families will be left to the impact evaluators. It would be very helpful if the impact evaluators would include a few questions in their survey about the parents' satisfaction with the program and their perceptions of its effects.

Early M&V will focus on baseline information for the measures included in the energy efficiency measure kits provided to students. For Green Schools and Green Campuses, information will be collected on an ongoing basis about energy savings recommendations developed and adopted.

SCE 2505: CA New Homes

The 2006-8 program includes new emphases on target marketing, upstream training, and providing building design assistance. As always after a building code change, the program will face particular challenges in influencing builders to go beyond the new code. Process evaluation and market analysis will most likely be undertaken at the end of 2006 to determine the success of program activities in gaining program participation, to identify changes that could improve outcomes, and to gather market information that would assist program management in developing program approaches that would increase participation and energy savings. A follow-up will be done after the end of 2007 to inform planning for the next round of programs. One focus of early M&V and baseline analysis may be the level of code compliance outside the program. Another will be identifying the design changes that builders have made to qualify for the program and assessing their likely energy savings.

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SCE 2506, 2507: Comprehensive HVAC – Residential and Nonresidential

Because SCE's Comprehensive Packaged Air Conditioning Systems (CPACS) program is a novel and complex approach that covers both residential and commercial applications, an early process evaluation is well advised. It will be initiated in the third quarter of 2006 to give early feedback on how the program is doing after it has had a chance to get going. A follow-up process evaluation would then be fielded in the first half of 2008 to provide recommendations for program design changes that would be implemented in 2009. Early M&V is also critical to determine whether expected energy savings are being achieved, to identify any shortcomings in contractors' quality installation procedures, and to develop specific recommendations for overcoming any problems identified.

SCE 2508: Retro-Commissioning

This new program builds on experience in retro-commissioning in the partnership programs and building operator certification programs, but the expansion to a wide market and the integration of the various components warrants a process evaluation in the first year. It will be scheduled for the fourth quarter of 2006 to provide early feedback on whether the program is being implemented as designed, and whether it is being administered efficiently and effectively. Early M&V will monitor activity at a sample of sites to determine whether the expected levels of energy savings are being achieved and the reasons for any lost savings opportunities. A follow-up process evaluation will be scheduled for the first half of 2008 to provide recommendations for program design changes that would be implemented in 2009. Market analysis will include a survey of non-participants in order to identify reasons for non-participation and what might induce these building owners to undertake retro-commissioning.

SCE 2509: Industrial Energy Efficiency

This program is being developed from program activities that began in 2004-5. However, it's new because of the combining of multiple elements, including the added financing element and the rolling in of upstream motors rebates into the program. Consequently, a process evaluation will need to be completed in the 1st and 3rd years. This will provide for early feedback to guide the program's second year and then later feedback to support 2009 program implementation. Early M&V will document the types of actions that participants are undertaking as a result of program participation, monitor the energy savings estimates produced by the program, and feed into process evaluation recommendations for how to increase energy savings. Market analyses will gather information from samples of potential customers in key market segments and from already-available studies to determine what will drive customers to participate in this program. In addition, these analyses will provide assessments of market potential by segment. The

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Industrial Energy Use Survey will likely be a major information source for these potential analyses.

SCE 2510: Agriculture Energy Efficiency Program

This large, greatly modified program will offer a broad portfolio of energy efficiency products and services that is designed to address the diverse needs of agricultural customers. The level of activity for both water pumping and other end uses is being tremendously increased. The program will offer innovative bundles of products and services using new ways to meet the customer needs. To succeed, the program requires a great amount of coordination and leveraging activities, the success of which need to be evaluated every step of the way. Given the design of the program, process evaluation and market analysis will have the following objectives:

- 1) Identify and evaluate the program's crucial leveraging points with analyses of market structures and assessments of the program's coordination with internal and external resources.
- 2) Evaluate the program's outreach activities to enhance program participation in other areas such as waste water pump testing, agriculture processing, nurseries and greenhouses, and facilities covered under the Green Building Initiative Executive Order.
- 3) Measure level of customer satisfaction and understanding of energy efficiency measures and actions in response to the program's offering of the informational assistance such as pump test and energy audits.
- 4) Measure customer experience with the financing and incentives provision process.
- 5) Evaluate the effectiveness of new design assistance services offered to customers.
- 6) Assess the effectiveness of implemented program processes such as procurement of third party services, development and delivery of training and certification, customer contact and activity tracking, and flexibility to adjust to ongoing feedback process.

Early M&V/baseline/quality assurance work will require close coordination with program staff to monitor early program participation and to identify the end uses for which M&V activities should be undertaken. Because of the variety of specialized equipment and systems, areas of greatest uncertainty will be targeted.

SCE 2511: Small Business Direct Installation and On-Bill Financing

This is a continuing program with new elements added, both new end uses to be installed and a pilot financing program aimed at a separate segment of customers not eligible for the primary program. To provide early feedback for the new elements in the direct installation program and

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then later feedback for 2009 program implementation, process evaluations will need to be completed in the 1st and 3rd years. Process evaluation will examine contractor training, lead development, and opportunities for increased efficiencies, among other topics. Early M&V/quality assurance activity will be needed to assure that:

- audits are successfully identifying the major energy savings opportunities;
- contractors are following up on major low-cost energy savings opportunities beyond compact fluorescent lighting; and
- contractors are installing equipment properly, in appropriate locations.

The primary focus of market analysis will be to assess potential target markets for the program. Criteria will probably include retrofit potential, likely payback periods, availability and ease of use of alternative financing options, willingness and ability to use on-bill financing, repayment risks, administrative costs per participant compared to energy savings achieved, and subsidy rates required to induce participation (both payment of part of retrofit cost and interest rate on financing). Much detail on the issues involved has been provided in SCE and SoCalGas's program filings.

Because it is a pilot program, the on-bill financing activity will be given extensive process evaluation and market analysis. Process evaluation will focus on development of a program logic model and on assisting program staff to develop complete process charts to document intended program operation. The ongoing process evaluation will help the evolving program to develop reliable and efficient processes for recruiting customers, developing a retrofit plan and budget, determining loans, providing quality retrofits that capture as much as possible of cost-effective energy savings, and monitoring repayments. Market analyses will focus on identifying market segments that would be most appropriate candidates for a larger program and how to target different program offerings appropriately, so that there will be clear distinctions between customers eligible for the no-cost direct installation program and an on-bill financed direct installation program.

SCE 2512: Savings By Design

This continuing program will require a relatively early process evaluation in light of changes in the program structure from earlier years. Changes that will form particular foci for the process evaluations include the added emphasis on the renovation of existing buildings, training activities, and quality installation initiatives. Process evaluations will need to be completed in the 1st and 3rd years. Early EM&V will be directed particularly towards quality installation issues.

A foundation of market analysis will be the continued Market Characterization and Program Activity Tracking study, which gathers data from F.W. Dodge reports and other sources to

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document the level and types of new construction activity in each utility's service territory and the mix of market segment participation in the Savings By Design program. Adding data on energy efficiency potential by market segment, market analysis studies will identify segments that are under-represented in program participation in comparison with their potential, attempt to determine the reasons for their lack of participation, and seek out approaches that might increase their participation.

SCE 2513: Education, Training and Outreach

All program offerings will undergo a process evaluation in which program processes are documented and compared against the program logic model. In-depth process evaluations during the second half of 2006 will be focused on the new workshops and seminars, in order to provide timely advice for future program improvements. For existing programs, process evaluations will be conducted at the end of 2006 to refine program processes. For all programs, a process evaluation will be conducted during or after the last year of program activities to provide formative information. Depending upon the needs of each program, interim process evaluations may also be conducted. Process evaluation objectives are as yet undetermined but will likely include the following data collection and analysis activities:

- 1) document program processes and compare them against the program logic model;
- 2) assess the usefulness of the course content/materials;
- 3) assess the linkages between education and training efforts and other programs and recommend enhancements where this would provide additional benefits;
- 4) assess opportunities for follow-up with customers who have participated in a training class with a view to increasing the impact of the coursework; and
- 5) assess overall customer satisfaction with the energy center as well as their satisfaction with each level of interaction with the program.

Market analysis will probably be combined with the process evaluation work. It will use the early process evaluations to provide input on areas that need market analysis, and the market analysis findings will feed into the final program evaluations to provide well-informed recommendations for future enhancements. One area of exploration is likely to be what training needs are being identified as SCE's 2006-8 portfolio of programs gets under way and significant deficiencies are discovered in knowledge and methods used by various types of contractors or building operators. The analysis may go on from this to determine whether particular training classes may be linked to programs and/or targeted and extensively marketed to a particular customer or trade ally segment, in order to achieve a measurable change in energy efficiency knowledge and behavior in that segment.

SCE 2514: Sustainable Communities

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A process evaluation of this program will be included with the process evaluation of Savings By Design. Because Sustainable Communities is a new program and there are significant changes in the program design of Savings By Design, a process evaluation will be initiated in the fourth quarter of 2006. Work on the Sustainable Communities portion will follow, to provide time for the program to develop its operations. A follow-up process evaluation would then be undertaken in the first half of 2008, aimed at providing feedback for program design changes that would be implemented in 2009. The evaluation will seek out community input and reactions to the program. It will also assess program start-up and operations in order to assist program management to streamline the processes and make the program more effective in supporting community uptake of sustainability policies and actions. As the program develops, effective activities in some cities will be shared with others. Market analysis activities may involve a literature review to gather information on successful approaches used in other cities in the U.S. and internationally.

SCE 2515: Emerging Technologies

Process evaluation plans are yet to be determined, but will most likely include assessment of program processes against the program logic model, and development of recommendations to make the technology assessment process more efficient. There is a database containing information about each technology and the results of various benchmarking tests. The process evaluation will therefore likely include an evaluation of the database's usability, the data's integrity, and the database's usefulness to the program stakeholders. A process evaluation will be conducted at the end of 2006 to provide timely corrective feedback, and a second process evaluation will be conducted at the end of 2008 to inform program design in 2009 and beyond.

Substantial market analyses are being requested by program management to guide the choice of technologies for their support and analysis. Program engineers review candidate technologies, carefully assess the unit energy savings they promise, and informally assess their cost, potential breadth of application and customer acceptability. Technologies passing their initial screening will be subjected to market analyses that will gather more systematic data on their cost, breadth of application, and characteristics that can impact customer acceptance. M&V is part of the scope of the program, so it is not covered here.

SCE 2516: Codes & Standards Advocacy

This program will be undergoing some significant changes in 2006-8, because of its possible new status as a resource program, increased levels of statewide coordination, and new needs for code compliance training. A process evaluation should focus on the statewide coordination and the program's response to code compliance issues. Process evaluation for the selection, development, and support of code and standards enhancement cases may need to be considered as providing early input to the 2009 and beyond impact evaluation, because it will involve

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interviewing the same people who will ultimately need to be interviewed for attributing energy savings to the program activity.

For planning future funding levels for C&S, there is a need to develop ex ante estimates of what the 2009-11 C&S programs can be expected to deliver. It should be feasible to develop rough estimates using a modified version of the methodology used by Heschong Mahone Group to estimate the future savings of the 2002-2005 C&S programs. The study might simply develop and describe a methodology that program/portfolio managers could use in assessing how much additional budget to give to C&S to increase portfolio savings in the next program cycle.

SCE2517: Business Incentive Program

This program will seamlessly combine previous nonresidential programs into one comprehensive program that is easier for nonresidential customers to understand and take advantage of, and that will be more efficient to administer. In order to determine early on if this integration of the various components is working as designed, a process evaluation will be started in the middle of the first year to provide early feedback on whether the program is being implemented as designed, and whether it is being administered efficiently and effectively. A follow-up process evaluation will be scheduled for the first half of 2008 to provide recommendations for program design changes that would be implemented in 2009. The process evaluation will be linked to the early M&V/baseline/quality assurance work, using it as one major source of information for developing recommendations for improved program processes.

Monitoring of the mix of measures being rebated and of areas of concern identified by program management and others will help to determine the foci of early M&V, baseline analysis, and quality assurance efforts. Measures responsible for the greatest expected energy savings will be subjected to M&V, as will measures for which ex ante savings estimates are deemed to be relatively uncertain. A sample of customized rebate recipients will be reviewed to develop a roughly estimated realization rate for energy savings on customized projects. A tendency towards lower realized savings would generate new efforts by program management and the evaluator to identify the causes, to correct the program's energy savings estimation processes, and to identify ways in which savings could be increased. Another focus of early quality assurance work will be an analysis of the new tracking system for this largest of all programs, to assure that it collects data that will enable easy cross-program targeting and effective evaluation.

Audit activity will be monitored and reviewed:

- 1) To validate the energy savings estimates being provided to customers;
- 2) To assure that the full range of end uses are audited
- 3) To determine whether audit recommendations are appropriately prioritized by cost and energy savings potential;

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4) To assess whether the audit process provides easy linkage to incentive and educational programs and motivates recipients to take action.

SCE 2518: Partnerships

Process evaluations will be conducted across the entire program or at the least subsets of the program, rather than individual evaluations of each of the 11 partnerships. This will allow for the kinds of comparisons across partnerships that will find best practices that can be duplicated by others, while also respecting the differences in priorities and capabilities among partner organizations. The program is seeking to develop a core set of effectively designed activities for each type of partnership that can be duplicated at lower cost, thereby increasing the effectiveness of each partnership while also limiting costs. One core activity is using the partner's greater access to certain customer groups to effectively communicate other energy efficiency program opportunities. The process evaluations will review other programs in the portfolio along with partnership referral activities to assess whether the partnerships are effectively channeling customers to all the other programs for which it has a comparative advantage in providing this outreach support. The timeline for the evaluation studies will include one process evaluation conducted at the end of the first year of program activities to allow for improving operations during the remaining two years and another process evaluation conducted in the last year to support new or improved program designs for 2009-11.

Market analyses will be conducted as needed for individual partnerships that need more information about their constituency in order to design effective activities. Early M&V and baseline analysis will be provided for partnerships that have a major focus on achieving energy savings directly through retrofits or construction of partner buildings or through city permitting and inspection processes.

SCE 2519, 2520: IDEEA and INDEE

Process evaluation of the overall recruitment, selection, contracting, and startup parts of this program should be initiated in early 2006. Small process evaluations of the selected pilot programs should begin in early 2007 or whenever the program has entered a state of stable operation. Because these are new programs, they will especially benefit from early feedback. Follow-up evaluations in early 2008 would be focused on program effectiveness, so that the information could be fed into the decision on whether to continue these pilots as mainstream programs.

Early M&V will be important to all of the INDEE programs and also to several of the IDEEA programs, since the technologies and installation/quality assurance processes will be new and untested in a program setting. The M&V and process evaluation work will focus on ways to improve the program designs and operations, as well as to increase energy savings.

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Market analyses are expected to be extensive, given the budget of the program, because these new programs and technologies will be particularly able to benefit from them. Organized data collection and analysis can help them identify (1) customer segments with the highest potential for benefiting from the program and (2) communication and outreach media and messages that will be most effective in reaching these customers and persuading them to participate.

SCE 2521: Statewide Marketing and Outreach

The statewide process evaluation should cover documentation of program activities, surveys of key program staff, and the collection of information from studies of individual programs that rely on these marketing and outreach programs as a means to move customers into their programs. This latter step will require coordination with the evaluation plans for those individual programs, probably most significantly residential rebate and audit programs. In addition, surveys of samples drawn from the targeted customer groups should be done at the beginning and end of the program period to document customer awareness, knowledge, and attitudes about energy efficiency, their recognition of the Flex Your Power brand, and their stated intentions with regard to energy efficiency. Market analyses will be conducted as requested by marketing and outreach program management, in order to assist them in the design of their approaches. The scope of utility studies will be planned in coordination with the Joint Staff study scope to avoid duplication of efforts.

SCE Overarching Market Analysis Activities

Energy Efficiency Forecasting, Forecasting Model, and Annual Savings Model

Energy efficiency program and portfolio forecasting and cost-effectiveness analysis will be part of SCE's market analysis activities. This work builds on the energy efficiency potential studies that will be managed by Commission staff to provide SCE staffing for development of CPUC- and CEC-required energy efficiency forecasts and for detailed, SCE-specific analysis that will help the portfolio and program managers to determine cost-effective levels of energy efficiency program activity, to identify the most promising program areas, and to decide on program budget levels. Currently available forecasting models need significant refinements to take full advantage of available data and to provide flexible and easy analysis capabilities. A low-cost additional activity is the development and maintenance of a model for allocating and reporting annual energy savings from each program year into all future years in which they accrue. This model would likely be developed as an extension to the forecasting model and could incorporate savings persistence rather than simple effective useful life estimates in its annual energy efficiency savings estimation.

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Residential and Nonresidential Energy Efficiency Attitude Surveys

These studies will use telephone surveys to gather data from representative samples of customers regarding their attitudes towards energy use, energy efficiency, conservation, and demand response. They will also collect information on these customers' level of knowledge of energy efficiency and peak demand reduction options, sources of information, demographic characteristics, and program participation. The key usage of the data will be to segment customers by attitudinal groupings and to use these groupings to determine effective messages and communication media for increasing customers' knowledge about and receptiveness to energy efficiency and peak demand reduction messages. The results will be provided to the utility, partnership, and third party personnel involved in marketing and outreach activities to assist them in increasing the effectiveness of their messages and message delivery methods.

Basic Data Collection and Analysis: Demographic, Business, and Weather Data

Market analysis work includes the ongoing collection and maintenance of base data needed for effective program design, targeting, analysis, and evaluation: demographic, business classification, and weather data. Demographic data are available to SCE's Energy Efficiency Division through SCE's market research organization. Business classification data and software, however, have traditionally been provided by measurement and evaluation funding, since its primary uses are for energy efficiency and demand forecasting, energy efficiency potential analysis, and program design, targeting, and marketing purposes.

SCE maintains a system of 24 weather stations that provide data used to estimate energy usage and energy savings of individual customers in multiple programs. It's the basis for the energy usage and energy savings analyses provided to customers through two of SCE's home energy efficiency survey programs. It provides input to building energy simulation models used in multiple nonresidential energy efficiency programs, in particular Savings By Design. It will take on new value and importance in 2006-8 as a key input for the new retro-commissioning program. These data are also used in virtually all of the program impact evaluations of SCE programs.

Portfolio Analysis

This funding allows both consultant and internal evaluation staff work to analyze coverage of markets, strategies, end uses, and technologies in SCE's program portfolio. It also funds exploration of optimal coordination among programs in delivery, marketing, and outreach. Its goal is to make recommendations for refining current program coverage and to provide input for the 2009-11 program cycle. The work builds on the process evaluations and other SCE and utility market analyses, especially including those of SCE's IDEEA and INDEE programs. It will also gather information from other states and utilities and coordinate with the energy efficiency forecasting/potential work that informs program design.

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Program Best Practices Updates

SCE will undertake selective updating of the statewide Best Practices Database using its Portfolio Analysis work as a primary source of information about new program reports and practices to be included.

Multi-Client Studies

Each year, several opportunities arise for SCE to participate in multi-client studies dealing with energy efficiency program issues. Costs range from \$10,000 to \$50,000. These studies provide a relatively low-cost option for gathering data. Usually they provide data on a national level that can be used as at least a rough representation for SCE's service territory. Often regional breakdowns are available, providing something closer to data representative of California. In some cases, over-sampling within a specific area can be provided for an extra fee, so that the client can compare results in their own territory with national results.

These studies cover topics as diverse as Energy Star brand recognition, customer attitudes and preferences, and program characteristics and funding. The American Council for an Energy-Efficient Economy usually offers at least one such study each year on a topic that is highly relevant for California energy efficiency programs. The Consortium for Energy Efficiency offers high-value joint research opportunities. Market research firms also occasionally offer useful options.

Conference/Organization Support

Support of conferences and conference attendance for national and regional conferences focused on energy efficiency programs and measurement and evaluation issues is included in the budget table under the category of SCE Overarching Market Analyses. Utility program management and evaluation staff members as well as Commission energy efficiency oversight staff need the information and professional development offered by these conferences to maintain their work at the premier level that California programs and evaluation work currently attain. Such conferences also provide access to studies completed by others that provide valuable information for California program planning. Organizations such as the Association of Energy Services Professionals, the Alliance to Save Energy, and the American Council for an Energy-Efficient Economy provide valuable opportunities for learning from energy efficiency activities and staff in other jurisdictions. Support for such organizations is often a low-cost way to gain continuing access to this value.

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CALMAC Support and Website

The California Measurement Advisory Council (CALMAC) website makes publicly available electronic copies of all energy efficiency studies completed with Commission-authorized energy efficiency funding. The website also provides notification and access to the activities of CALMAC. CALMAC serves as a forum for Commission and utility measurement and evaluation staff to communicate and work together on evaluation issues. Funding and staffing support will be provided to enable CALMAC meetings, workshops, and forums and to maintain and enhance the website.

Statewide Saturation Surveys

The utilities are required by Title 20 of the California Code of Regulations to conduct periodic surveys of their residential, commercial, and industrial customers and to provide the survey results to the California Energy Commission for demand forecasting purposes. These surveys are also used as primary data sources for energy efficiency potential analyses. In addition, they are valuable sources of information for program managers to use in targeting programs to customer segments. Funding is needed for each of the sectoral saturation surveys during the 2006-8 period. The estimated funding levels were provided by a CEC representative and are based on the use of detailed onsite surveys to gather data for representative samples needed to meet Title 20 requirements.

SCE Evaluation, Measurement & Verification Staffing

Specialized and experienced utility staffing is necessary for utility-administered EM&V activities and for support of Joint Staff-administered activities. The appropriate activity budgets include funding for needed contract work and for the following EM&V staff functions.

- Management of SCE studies:
 - program process evaluations and quality assurance analyses, including early measurement & verification and baseline analyses to provide quick feedback for needed program design and operation changes; and
 - market analyses to support specific programs.
- Management and/or support of utility-managed statewide market analyses, including saturation surveys required by CCR Title 20 to be submitted to the California Energy Commission.

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- Providing program administrator and implementer input on research design and draft reports of program impact evaluations managed by Joint Staff. This includes gathering and conveying to Commission evaluation managers and their contractors the information needs, issues and concerns of program managers.
- Providing program tracking data, customer billing data, and other customer data to evaluation contractors as needed for Joint Staff-managed program impact evaluations.
- Coordination of study coverage and timing with Joint Staff's evaluation contractors in order to avoid unnecessary overlaps in data collection and analysis, reduce potential customer burden from multiple contacts, and to share data collected that might be helpful to the other group's evaluation contractors.
- Work with the Commission's contractors and utility personnel to support the contractors' customer contact, survey, and measurement activities.
- Collection of data needed for operation, effective targeting, and analysis of programs and for analysis of energy demand and energy savings potential, including weather data and business classification data.
- Development and analysis of forecasts of energy and demand savings from energy efficiency programs.
- Gathering actionable study results and working with program managers to use findings to improve programs.

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Southern California Edison

TABLE 4: EVALUATION, MEASUREMENT & VERIFICATION BUDGET FOR 2006-8

SCE-Managed Program Studies

Costs in thousands of dollars (\$'000's)

Program Number	Program Name	Program Budget (\$'000s)	Market Sector	Pgm Class	Pgm Status	Proc. Eval. Years	Mkt. Anal. Years	Process Evaluation Cost	Market Analysis Cost	Early M&V / Baseline Cost	Total *
SCE2500	Appliance Recycling	39,886	R	SW, CB	REP	6, 7	7	78	78	65	221
SCE2501	Residential EE Rebates	67,302	R	SW	REP	6, 8	6, 8	156	195	104	455
SCE2502	Multifamily Rebates	53,165	R	SW	REP	6, 7	7	98	130	78	306
SCE2503	Home Energy Efficiency Surveys	5,965	R	SW, CB	REP	7, 8	7	85	59	65	208
SCE2504	Integrated Schools	4,988	R	L	NEW	7	7	156	39	39	234
SCE2505	CA New Homes	18,332	R	SW, CB	REP	6, 8	6, 7	98	156	52	306
SCE2506	Comprehensive HVAC - Residential	12,130	R	SW, CB	NEW	6	7	98	78	78	254
SCE2507	Comprehensive HVAC - Nonres.	48,518	NR	SW	NEW	6	7	98	98	78	273
SCE2508	Retrocommissioning	11,756	NR	SW, CB	NEW	6	7	98	104	78	280
SCE2509	Industrial Processes	40,535	NR	L, CB	NEW	6, 8	6, 7, 8	195	390	104	689
SCE2510	Agricultural Energy Efficiency	38,063	NR	L, CB	NEW	6, 8	7	156	195	104	455
SCE2511	Small Business Direct Install	48,400	NR	L, CB	REP	7	6, 8	91	104	52	247
SCE2512	Savings By Design	30,933	NR	SW	REP	6, 8	6	104	208	52	364
SCE2513	Education, Training & Outreach	24,076	CC	L	REP	6, 8	7	117	156	0	273
SCE2514	Sustainable Communities	4,429	CC	L	NEW	7, 8	7	65	52	0	117
SCE2515	Emerging Technologies	11,430	CC	SW	EP	7	6, 7, 8	85	455	0	540
SCE2516	Codes & Standards Advocacy	5,852	CC	SW	EP	7	6	78	130	0	208
SCE2517	Business Incentive Program	105,923	NR	SW	REP	6, 8	7	208	325	195	728
SCE2518	Partnerships	44,491	P	P	REP	6, 8	7	390	104	104	598
SCE2519	IDEEA	32,662	ALL	CB	REP	6, 7, 8	7	455	273	390	1,118
SCE2520	INDEE	5,780	ALL	CB	NEW	6, 7, 8	7, 8	247	260	195	702
SCE2521	Flex Your Power Campaign	20,214	ALL	SW	EP	6	6, 8	52	104	0	156
	On-Bill Financing Pilot					6, 7, 8	7	98	104	0	202
Totals		674,830						\$3,302	\$3,796	\$1,833	\$8,931

Notes:

- * Total EM&V Budget by Program includes SCE staffing support for both SCE and Joint Staff studies.
- 1. Costs are 3-year totals and are expressed in thousands of dollars.
- 2. Program Classification Abbreviations: Statewide, Local, Partnership, or Competitively Bid
- 3. Program Status Abbreviations: Existing Program, Revised Existing Program, or New Program

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TABLE 4 (continued)

SCE Overarching Market Analyses

Study		Year		SCE Cost (\$'000's)	
EE Forecasting Model	6			350	
EE Forecasting	6,7,8			600	
Annual EE Energy	7			50	
Residential EE Att	6			320	
Small Nonresident	6			225	
Business Classification/Analysis Software				360	
Business Classification	6,7,8			450	
Weather Data	6,7,8			450	
Portfolio Analysis	6,7,8			250	
Program Best Practices	7			120	
Multi-Client Studies	6,7,8			300	
Conference/Organ	6,7,8			150	
CALMAC Support	6,7,8			50	
Total				3,675	\$3,675

Statewide Saturation Surveys

		Contract		SCE	
		Year	Cost	Cost	
Study & SCE Cost Share w/Labor			(\$'000's)	(\$'000's)	
Residential Appliance	7		1,800	720	
Commercial Energy	8		2,400	960	
Industrial Energy Use	6		1,400	560	
Total				2,240	\$2,240

SCE Utility-Managed Total **\$5,915**

Joint Staff-Managed Total **\$39,141**

SCE EM&V Total Budget **\$53,987**

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**PACIFIC GAS AND ELECTRIC COMPANY
EVALUATION, MEASUREMENT AND VERIFICATION
EM&V PLANS, FUNDING LEVELS AND BUDGET ALLOCATIONS
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**PACIFIC GAS AND ELECTRIC COMPANY
EVALUATION, MEASUREMENT AND VERIFICATION
EM&V PLANS, FUNDING LEVELS AND BUDGET ALLOCATIONS
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**PACIFIC GAS AND ELECTRIC COMPANY
EVALUATION, MEASUREMENT AND VERIFICATION
EM&V PLANS, FUNDING LEVELS AND BUDGET ALLOCATIONS
ACROSS STUDY CATEGORIES**

Decision 05-01-055 (“Administration Decision”) established new roles for the investor owned utilities (“IOU”) and the Energy Division related to Evaluation, Measurement and Verification (EM&V) of energy efficiency programs. This change was made in light of the IOU’s new role as portfolio administrator (PA). The joint CPUC and CEC staff (EM&V Team) in their role as policy oversight will now administer overarching studies and impact evaluation of portfolio savings to assess the PA’s performance. The IOUs retain oversight of program process evaluations and market research to help facilitate the design and oversight of the portfolio and individual programs. The Administration Decision adopts a statewide EM&V budget of 8% of total portfolio. Through the EM&V Roadmap budget planning process, Joint staff along with the Program Administrators reached consensus on EM&V budget allocations of 5.8% to support the CPUC Joint Staff EM&V 2006-08 plans with the remaining 2.2% allocated to the program administrator’s 2006-08 EM&V plans.

The following describes PG&E’s proposed key market research, market assessment and evaluation objectives; proposed study types; statewide EM&V coordination; process evaluations and EM&V strategies to support integrated DSM. Attachments A and B provides details on PG&E’s proposed budgets and brief summaries of specific studies proposed for 2006-08.

A. Market Research and Assessment Studies

With the substantial changes and innovative delivery approach to PG&E’s energy efficiency portfolio, we anticipate a commensurate need for more market assessments,

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market research and testing of marketing strategies and program theories to ensure a successful transition to the changes described for the portfolio components. PG&E will employ various market research techniques that will: 1) test the hypotheses in the various program theories such as integrated DSM, cross-marketing, mass market outreach and vertical delivery strategies; 2) enhance market segmentation and targeting strategies through assessment of market barriers, customer attitudes and behavior, communications testing; and 3) continue to streamline marketing outreach strategies by integrating demographics, customer billing, and market potential resources.

PG&E's innovative MI DSM approach relies on new strategies, delivery methods, and planning assumptions that will require testing and continuous assessment to ensure program success.

PG&E's integrated market and delivery approach introduces new theories in how markets will respond and strategies by which PG&E will impact energy efficiency adoptions as compared to previous program implementation strategies. The new theories stress using a simplified, easy to access and unified delivery approach to encourage multiple adoptions of energy efficiency actions. The new strategies will consist of multiple delivery channels including engaging retailers and manufacturer in product buy-downs and point-of-purchase rebates, incenting contractors to promote and deliver higher efficient products, and providing rebates directly to the end-user. The strategies will also rely on integrated communications vehicles such as using mass media to raise awareness of point-of-purchase, on-line and mail-in rebates, as well as targeted solicitations to reach high-potential customers.

To assess the efficacy of these activities, PG&E's key program, and market research and assessment objectives are:

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- a. assess the accuracy of assumptions underlying the various program theories including, verifying points of influence in decision-making, identifying market barriers, and baseline assumptions
- b. provide input to performance tracking via measuring individual program performance in terms of market impact under the new theories
- c. assess the effectiveness of the overall integrated portfolio in promoting multiple EE adoptions/practices
- d. measure customer and vendor satisfaction with the program participation process

Specific study types PG&E will employ include:

- Conduct market assessments to determine key factors that characterize and influence targeted segments (i.e., market size, trends, industry characteristics, delivery channels, etc.)
- Conduct decision-making studies (e.g., surveys, focus groups) to assess points of influence in EE adoptions
- Monitor program metrics in terms of changes in practices such as stocking studies, POP displays, product turn-over, vendor enlistment, etc.; (e.g., conduct real-time measurement on performance metrics during implementation to feedback into program for adjustment as needed)
- Conduct process evaluations on integrated delivery strategies

To reach the energy targets, PG&E must use target enhancing strategies that identify high-yield (per unit savings) and high-market potential opportunities

Given the energy targets PG&E must reach over the next three years, PG&E will need to continue to develop and refine its integrated market approach to identify innovative opportunities to grow and or expand markets through strategic targeting. As such, PG&E's market research objectives for this activity will include:

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- a. Continue to develop market adoption and product lifecycle models to enhance strategic planning and market selection
- b. Determine market barriers that may impede program adoption in key segments
- d. Assist with development of communications/message strategy to raise awareness of program offerings
- e. Assess viability of program concepts/pilots through early assessments of baselines

Specific study types PG&E will employ include:

- Conduct attitude and usage segmentation studies to assess perceptions toward key EE measures and practices
- Conduct concept testing and/or conjoint studies on new program ideas/packaging (e.g., focus groups, surveys)
- Conduct advertising awareness studies to measure and track awareness of EE messages
- Conduct billing analysis, short-term metering or spot watt measurement of program pilots to determine savings assumptions for new program approaches (i.e., water treatment, tool lending, etc.)
- Assess the interactive effects of key technologies and strategies that incorporate both energy efficiency and demand-response features and enabling capabilities (i.e., Building and process control systems, and addressable ballasts, etc.)

B. Process Evaluations

The Administration Decision transfers the responsibility for impact related program studies to the CPUC but leaves program process evaluations and market research with the IOUs. The program process evaluations are described below.

PG&E will conduct process evaluations on non-utility programs as appropriate and required for the mix of programs ultimately selected and funded.

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Program process evaluations are an essential component of the IOU's oversight of these programs including the responsibility to meet the portfolio energy targets. Process evaluations will ensure that the non-utility programs are operated consistent with the program theory and design proposed by the bidder. IOU coordination of non-utility program process evaluations will allow these evaluations to be grouped and coordinated as appropriate reducing project management administration costs.

Additionally, an over-arching process evaluation will be conducted to evaluate the degree to which local government and, non-utility programs are coordinated and how they respond to the IOU integrated approach. Again, PG&E will carry out these evaluations using the best practices for conduction Process Evaluations as described in the California Framework for Evaluation Methodology and according to any prescribed EM&V Protocols.

C. Integrated Data-management and Targeting Resources

PG&E's innovative MI DSM approach will require access to integrated data sources in order to deliver energy efficiency products and services that best meet customers' needs

A key component of PG&E's integrated delivery approach is to use targeting to identify specific market segments and/or specific end-users within a segment to maximize kWh, kW and therm savings per contact. A key tool to facilitate this process is a cross-functional database. PG&E's Marketing Decision (S) System (MDSS) maintains customer information including market identifier information such as the North American Industry Classification System (NAICS) codes. The MDSS also tracks DSM customer participation that includes information on program measures rebated, and various site characteristics when applicable.

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For 2006-08, PG&E will further refine its data systems to draw on information from the market potential studies, DEER, census tract data, along with customer identifier information (including billing data) from MDSS. The recent Commission decision expanding the scope of interval metering to all customers with 200 kW or greater and the enhanced data granularity offered by a potential AMI deployment will also provide a rich source of information needed to support energy program design and delivery needs.

The ability to access the above information sources in an integrated fashion will allow PG&E to further analyze DSM opportunities by market and/or technology within a market. It will also aid PG&E in developing EE forecasts for filings and updates. This information will be available to program managers and implementers in a feedback loop that shares research results in order to support continually improving portfolio performance.

D. Statewide Impact and Market Study Coordination

PG&E will coordinate any data collection activities with the statewide EM&V team(s) as needed and appropriate in order to minimize multiple customer contacts. PG&E will work with the statewide EM&V teams to ensure that systems are in place to collect the appropriate data to comply with performance basis metrics (yet to be determined). PG&E will facilitate access to PG&E's customer data and transfer to the appropriate statewide EM&V implementer via signed non-disclosure agreements to support the statewide EM&V efforts. PG&E will also work with successful non-utility bidders in ensuring the appropriate performance basis metrics are available for statewide EM&V studies

PG&E will also work with the other IOU administrators to identify any study synergies such as market assessments that will benefit other administrators.

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E. Integrated DSM EM&V

A key objective for many of the studies mentioned above will be to identify opportunities (i.e., potential) for delivering other DSM offerings such as Demand Response (DR). Many customers can take greater advantage of DR offerings by first implementing all cost-effective energy efficiency options. PG&E's EM&V efforts will address how integration influences customer participation in multiple offerings. PG&E will conduct ongoing assessments of the integration of DSM to provide corrective feedback to the programs as well as conduct an overall evaluation regarding the success of the integration process at the portfolio level.

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This section summarizes the proposed market segment evaluations that will assist in decisions regarding program design, implementation and improvements. Specifically, PG&E's evaluation strategy will be to develop and conduct process evaluations and market research and assessments to address specific needs of the various market segments.

PG&E Market Segment Programs

Mass Market

- Process evaluation for the Mass Market sector will address energy efficiency adoption among residential, small, medium, and large commercial customers, developers, contractors, and building owners/managers. This evaluation will focus on program delivery mechanisms, marketing and delivery channels, timelines and customer satisfaction for the following six key end-uses: 1. Lighting/Lighting Controls; 2. HVAC/AC; 3. Plug Load; 4. Motors/Pumps; and 5. Information/Outreach/Emerging Technologies/ Codes & Standards.

For the Mass Market, industry-segment energy benchmarks will look at energy per square foot, energy per unit of product out. Industry specific baselines will include design and engineering practices in new construction that affect energy efficiency and other energy management strategies.

PG&E may conduct several process evaluations for the listed segments and end-uses/delivery channels during the three year period. The number and schedule for studies may also be influenced by the number of third-parties that may have unique delivery characteristics that require a separate study.

- Market research and assessment studies will be conducted to ascertain and clarify logic models of the markets for new mass market technologies developed over the three-year program period. The studies will determine market size, readiness, key delivery channels, market actors and allies. For example plug loads are an increasing

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and rapidly evolving marketplace that offers tremendous energy efficiency opportunities. To tap these opportunities effectively, additional research and ongoing analysis on their markets and their responses to our programs will be needed.

Agriculture and Food Processing

- Process evaluation on the agricultural and food processing sector will look at program delivery mechanisms, marketing and delivery channels, timelines and customer satisfaction for the following key program intervention strategies: 1. On-site audits and/or pump tests; 2. Engineering support and design assistance; 3. Free software tools for whole system and whole building modeling; 4. Deemed and calculated incentives; 5. Education and training on energy efficiency, demand response and distributed generation; 6. Continuous commissioning and retro-commissioning; 7. Benchmarking information and resources; 8. Comprehensive information from PG&E and other resources, including Emerging Technologies and Codes & Standards.

Key markets to be addressed by Program integrated offerings are:

1. Agricultural (mostly related to pumping); 2. Dairies; 3. Food Processing;
4. Wineries and 5. Refrigerated Warehouses.

Industry-specific baselines of practices that may not be tied to California codes, such as industrial or agricultural design and engineering practices in new construction that affect energy efficiency and other energy management strategies.

PG&E may conduct several process evaluations for the listed segments and end-uses/delivery channels during the three year period. The number and schedule for studies may also be influenced by the number of third-parties that may have unique delivery characteristics that require a separate study.

- Market research and assessment studies will be conducted to ascertain and clarify logic models of the markets for new energy efficiency technologies pertinent to the Ag and Food Processing market developed over the three year program period. The studies will determine market size, readiness, key delivery channels, market actors and allies. For

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example cool roofs for refrigerated warehouses are a relatively untapped and immature marketplace that offers significant energy efficiency opportunities. To tap these opportunities effectively, additional research and ongoing analysis on their markets and their responses to our programs will be needed.

Fabrication, Process and Heavy Industry Manufacturing

- Process evaluation of program delivery mechanisms, marketing and delivery channels, timelines, customer satisfaction and integration of program elements will be done for the following key program intervention strategies: 1. Audits; 2. Engineering support and design assistance; 3. Deemed and calculated incentives; 4. Education and training on energy efficiency, demand response and distributed generation; 5. Continuous commissioning and retro-commissioning; 6. Benchmarking information and resources; 7. Comprehensive information from PG&E and other resources, including Emerging Technologies and Codes & Standards.

The Fabrication Process and Heavy Manufacturing program will promote energy efficiency adoption among industrial manufacturing, oil and gas extraction and refining, and water and waste water treatment industries

Energy benchmarks by industry-segment (energy per square foot, energy per unit of product output).

Industry-specific baselines of practices that may not be tied to California codes, such as industrial design and engineering practices in new construction that affect energy efficiency and other energy management strategies.

PG&E may conduct one or more process evaluations for the listed segments and end-uses/delivery channels during the three year period. The number and schedule for studies may also be influenced by the number of third-parties that may have unique delivery characteristics that require a separate study.

- Market research and assessments will be conducted to ascertain and clarify logic models of the markets for new energy efficiency technologies pertinent to the Fabrication, Processing and Heavy Industrial Manufacturing market developed over the three-year program period. The

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studies will determine market size, readiness, key delivery channels, market actors and allies. For example tapping the large and complex savings options in oil extraction and refining requires a long-term commitment to align with their business cycle for large capital investments that do not impact production schedules. To tap these opportunities effectively, additional research and ongoing analysis on these markets and their responses to our program offerings will be needed.

Hi-Tech Facilities

- Process evaluation of program delivery mechanisms, marketing and delivery channels, timelines, customer satisfaction and integration of program elements will be addressed for the following key program intervention strategies: 1. Audits; 2. Engineering support and design assistance; 3. Deemed and calculated incentives; 4. Education and training on recent industry developments in energy efficiency, demand response and distributed generation; 5. Continuous commissioning and retro-commissioning; 6. Benchmarking information and resources; 7. Comprehensive information from PG&E and other resources, including Emerging Technologies and Codes & Standards. The research will provide ongoing feedback and corrective guidance regarding program implementation. Process evaluation surveys are likely to include participating and non-participating customers, program implementers, and trade allies.

Energy benchmarks by industry-segment (energy per square foot, energy per unit of product output).

Industry-specific baselines of practices that may not be tied to California codes, such as high technology facilities design and engineering practices in new construction that affect energy efficiency and other energy management strategies.

PG&E may conduct one or more process evaluations for the listed segment and end-uses/delivery channels during the three year period. The number and schedule for studies may also be influenced by the number of third-parties that may have unique delivery characteristics that require a separate study.

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- Market research and assessments will be conducted to ascertain and clarify logic models of the markets for new energy efficiency technologies pertinent to the High Technology Facilities market developed over the three year program period. The studies will determine market size, readiness, key delivery channels, market actors and allies. For example large savings opportunities are expected from a radical redesign of data center cooling systems. To capture these savings requires a long-term commitment to align with their business cycle for the design and construction of these very large capital investments. To tap these opportunities effectively, additional research and ongoing analysis on these markets and their responses to our program offerings will be needed.

Hospitality Facilities

- Process evaluation of program delivery mechanisms, marketing and delivery channels, timelines, customer satisfaction and integration of program elements will be done for the following key program intervention strategies: 1. Audits; 2. Engineering support and design assistance; 3. Deemed and calculated incentives; 4. Education and training on recent industry developments in energy efficiency, demand response and distributed generation; 5. Continuous commissioning and retro-commissioning; 6. Benchmarking information and resources; 7. Comprehensive information from PG&E and other resources, including Emerging Technologies and Codes & Standards.

Energy benchmarks by industry-segment (energy per square foot, energy per unit of product output).

Industry-specific baselines of practices that may not be tied to California codes, such as whole-building design and engineering practices in new construction that affect energy efficiency and other energy management strategies.

PG&E may conduct three process evaluations at approximately \$50,000 each for the listed segment and end-uses/delivery channels during the three year period.

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- Market research and assessments will be conducted to ascertain and clarify logic models of the markets for new energy efficiency technologies pertinent to the Hospitality Facilities market developed over the three-year program period. The studies will determine market size, readiness, key delivery channels, market actors and allies. For example, how to bring energy efficient options to lighting, laundry, HVAC, and water heating that characterizes this market segment's main end-uses of energy is dependent on whether these are small, large, independently owned or chain-owned sites. Large, chain hotels typically remodel their facilities every three years. To capture these savings will require alignment between program offerings and market segment business cycles. To tap these opportunities effectively, additional research and ongoing analysis on these markets and their responses to our program offerings will be needed.

Large Commercial

- Process evaluation of program delivery mechanisms, marketing and delivery channels, timelines, customer satisfaction and integration of program elements for the following key program intervention strategies: 1. Audits; 2. Engineering support and design assistance; 3. Deemed and calculated incentives; 4. Education and training on recent industry developments in energy efficiency, demand response and distributed generation; 5. Continuous commissioning and retro-commissioning; 6. Benchmarking information and resources; 7. Comprehensive information from PG&E and other resources, including Emerging Technologies and Codes & Standards.

Energy benchmarks by industry-segment (energy per square foot, energy per unit of product output).

Industry-specific baselines of practices that may not be tied to California codes, such as large commercial whole buildings design and engineering practices in new construction that affect energy efficiency and other energy management strategies.

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PG&E may conduct two process evaluations at approximately \$300,000 each for the listed segment and end-uses/delivery channels during the three year period

- Market research and assessments will be conducted to ascertain and clarify logic models of the markets for new energy efficiency technologies pertinent to the Large Commercial market developed over the three-year program period. The studies will determine market size, readiness, key delivery channels, market actors and allies. For example, large savings opportunities can be captured by introducing newer, high efficiency T-5 and LED lighting fixtures. Plug loads are an increasing energy end-use that is garnering attention and new energy efficient product development is underway. The Large Commercial Program could possibly avail itself of these new technologies and enhance their market development. The Large Commercial Program will align with large property owners' or facility managers' investment decision-making cycles to capture efficiency opportunities. To tap these opportunities effectively, additional research and ongoing analysis on these markets and their responses to our program offerings will be needed.

Medical Facilities

- Process evaluation will include evaluation of program delivery mechanisms, marketing and delivery channels, timelines, customer satisfaction and integration of program elements for the following key program intervention strategies: 1. Audits; 2. Engineering support and design assistance; 3. Deemed and calculated incentives; 4. Education and training on recent industry developments in energy efficiency, demand response and distributed generation; 5. Continuous commissioning and retro-commissioning; 6. Benchmarking information and resources; 7. Comprehensive information from PG&E and other resources, including Emerging Technologies and Codes & Standards.

Energy benchmarks by industry-segment (energy per square foot, energy per unit of product output).

Industry-specific baselines of practices that may not be tied to California codes, such as medical facilities design and engineering practices in new

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construction that affect energy efficiency and other energy management strategies.

PG&E may conduct two process evaluations at approximately \$300,000 each for the listed segment and end-uses/delivery channels during the three year period

- Market research and assessment studies will be conducted to ascertain and clarify logic models of the markets for new energy efficiency technologies pertinent to the Medical Facilities market developed over the three-year program period. The studies will determine market size, readiness, key delivery channels, market actors and allies. For example, given the high ventilation needs of these facilities, the introduction of efficient variable-air-volume systems would result in significant energy savings. Lighting loads and energy use could significantly be reduced with the integration of controls and more efficient fixtures and lamps. The growing need for facilities to serve an aging population provides a good opportunity for energy savings by dedicating part of this program to systems-integrated design of efficient new facilities. To tap these opportunities effectively, additional research and ongoing analysis on these markets and their responses to our program offerings will be needed.

Residential New Construction

- Process evaluation of program delivery mechanisms, marketing and delivery channels, timelines, customer satisfaction and integration of program elements will be conducted for the following key program intervention strategies: 1. Audits; 2. Engineering support and design assistance; 3. Deemed and calculated incentives; 4. Education and training on recent industry developments in energy efficiency, demand response and distributed generation; 5. Continuous commissioning and retro-commissioning; 6. Benchmarking information and resources; 7. Comprehensive information from PG&E and other resources, including Emerging Technologies and Codes & Standards.

Energy benchmarks by industry-segment (energy per square or cubic foot).

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Industry-specific baselines of practices that may not be tied to California codes, such as dwelling design and engineering practices in new construction that affect energy efficiency and other energy management strategies.

PG&E may conduct two process evaluations at approximately \$150,000 each for the listed segment and end-uses/delivery channels during the three year period

- Market research and assessments will be conducted to ascertain and clarify logic models of the markets for new energy efficiency technologies pertinent to the Residential New Construction market developed over the three-year program period. The studies will determine market size, readiness, key delivery channels, market actors and allies. For example, integrated building design in tract home developments, with enhanced shell and efficient appliances can result in dwellings that use less energy and power than current Title 24 compliant homes. Current compliance with Title 24 in the Central Valley is the lowest in PG&E service territory. The study can help identify how the Residential New Construction Program needs to focus efforts to help developers in the growing Central Valley market meet the recent Title 24 code upgrade. To tap these opportunities effectively, additional research and ongoing analysis on these markets and their responses to our program offerings will be needed.

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Retail Stores

- This task will include evaluation of program delivery mechanisms, marketing and delivery channels, timelines, customer satisfaction and integration of program elements for the following key program intervention strategies: 1. Audits; 2. Engineering support and design assistance; 3. Deemed and calculated incentives; 4. Education and training on recent industry developments in energy efficiency, demand response and distributed generation; 5. Continuous commissioning and retro-commissioning; 6. Benchmarking information and resources; 7. Comprehensive information from PG&E and other resources, including Emerging Technologies and Codes & Standards.

The Retail Stores program will promote energy efficiency adoption among big box retail or grocery, restaurants, department stores, high-end niche marketers, and fast-food chain stores. Main end-uses of energy are lighting, refrigeration, HVAC, and cooking.

Energy benchmarks by industry-segment (energy per square foot, energy per unit of product output).

Industry-specific baselines of practices that may not be tied to California codes, such as retail stores design and engineering practices in new construction that affect energy efficiency and other energy management strategies.

PG&E may conduct three process evaluations at approximately \$120,000 each for the listed segment and end-uses/delivery channels during the three year period

- Market research and assessment studies will be conducted to ascertain and clarify logic models of the markets for new energy efficiency technologies pertinent to the Retail Stores market developed over the three year program period. The studies will determine market size, readiness, key delivery channels, market actors and allies. For example, there is a large, mostly untapped opportunity for saving energy and power in the cooking equipment arena. The Food Services and Technology Center's work on establishing test procedures to determine energy use in cooking equipment can be used to help this entire market segment adopt the most energy-efficient equipment as they retrofit or build new facilities.

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The Study can provide in-depth market analysis to optimize program offerings to capture these savings opportunities. For chain stores, a long-term commitment will enhance the adoption of energy savings opportunities. To tap these opportunities effectively, additional research and ongoing analysis on these markets and their responses to our program offerings will be needed.

Schools and Colleges

- This process task will include evaluation of program delivery mechanisms, marketing and delivery channels, timelines, customer satisfaction and integration of program elements for the following key program intervention strategies: 1. Audits; 2. Engineering support and design assistance; 3. Deemed and calculated incentives; 4. Education and training on recent industry developments in energy efficiency, demand response and distributed generation; 5. Continuous commissioning and retro-commissioning; 6. Benchmarking information and resources; 7. Comprehensive information from PG&E and other resources, including Emerging Technologies and Codes & Standards.

The Schools and Colleges program will promote energy efficiency adoption among public and private K-12 schools, colleges and universities. This market segment has high growth in Central Valley areas. Key energy end-uses are lighting, HVAC and laboratory facilities in post-secondary education facilities. Some key areas for in-depth evaluation are ongoing review of the success of: the improvement and dissemination of the California High Performing Schools design tools and the improvement in energy characteristics of the 4,000 annual new relocatable K-12 classrooms (equivalent to 2/3 of new classrooms), and new higher education buildings.

PG&E may conduct three process evaluations at approximately \$50,000 each for the listed segments and end-uses/delivery channels during the three year period

- Market research and assessment studies will be conducted to ascertain and clarify logic models of the markets for new energy efficiency technologies pertinent to the Schools and Colleges market developed over the three-year program period. The studies will determine market size, readiness, key delivery channels, market actors and allies. For example,

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large savings opportunities exist in improved shell, lighting and HVAC for relocatable classrooms, and efficient lighting and HVAC strategies for high-tech/bio-tech laboratories. To capture these savings requires a long-term commitment to align with their decision-making cycle for the design and construction of these very large capital investments. To tap these opportunities effectively, additional research and ongoing analysis on these markets and their responses to our program offerings will be needed.

- Education, Training and Outreach Process evaluation will include evaluation of program delivery mechanisms, marketing and delivery channels, timelines, customer satisfaction and integration of program elements for the following key program intervention strategies: 1. Audits; 2. Engineering support and design assistance; 3. Deemed and calculated incentives; 4. Education and training on recent industry developments in energy efficiency, demand response and distributed generation; 5. Continuous commissioning and retro-commissioning; 6. Benchmarking information and resources; 7. Comprehensive information from PG&E and other resources, including Emerging Technologies and Codes & Standards. The research will provide ongoing feedback and corrective guidance regarding program implementation. Process evaluation surveys are likely to include participating and non-participating customers, program implementers, and trade allies.

Energy and non-energy benchmarks by industry-segment (energy per square foot, educational achievement scores trends).

Industry-specific baselines of practices that may not be tied to California codes, such as building design and engineering practices in new construction.

PG&E may conduct three process evaluations at approximately \$50,000 each for the listed segments and end-uses/delivery channels during the three year period

- Market research and assessment studies will be conducted to ascertain and clarify logic models of the markets for new energy efficiency technologies pertinent to the High Technology Facilities market developed over the three year program period. The studies will determine market size, readiness, key delivery channels, market actors and allies. For

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example large savings opportunities are expected from a radical redesign of data center cooling systems. To capture these savings requires a long-term commitment to align with their business cycle for the design and construction of these very large capital investments. To tap these opportunities effectively, additional research and ongoing analysis on these markets and their responses to our program offerings will be needed.

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B. PG&E EM&V STAFFING REQUIREMENTS:

EM&V staffing is required in order to facilitate the needs of the selected EM&V Process Evaluation and Market Assessment contractors and contract management, provide required data by the Load Impact contractors selected by the Joint Staff, answer data requests from outside parties, participate in CPUC sponsored workshops and forums, provide annual, and monthly/quarterly regulatory status reports, provide cost-effectiveness calculations, oversee Statewide Studies, and provide feedback to program implementers.

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TABLE 5
Pacific Gas & Electric Company PY 2006-2008 Programs and Utility Evaluation Plans
Costs in thousands of dollars (\$000's) for 3 year total

1. PG&E Specific Market Analyses

Program	Program Name	Total Program Budget	Market Sector	Pgm Class	Pgm Status	Process Eval Yrs	Mkt Anal Yrs	Total EM&V Budget (including PG&E's labor)	Process Eval Cost	Mkt Anal Cost	Early QA MV/Baseline	
PGE A	Mass Market	\$450,928	ALL	SW, CB	REP	6,7,8	6,7,8	\$4,500	\$1,500	\$2,500	\$500	
PGE B	Ag & Food Processing	\$47,523	NR	L	NEW	6,7,8	6,7,8	\$1,520	\$900	\$500	\$120	
PGE C	Fabrication, Process & Heavy Ind Man	\$121,840	NR	L	NEW	6,7,8	6,7,8	\$2,107	\$700	\$1,200	\$207	
PGE D	Hi-Tech Facilities	\$19,337	NR	L	REP	6,7,8	6,7	\$660	\$200	\$400	\$60	
PGE E	Hospitality Facilities	\$5,975	NR	L	NEW	6,7,8	6,8	\$350	\$150	\$200		
PGE F	Large Commercial	\$36,899	NR	L	REP	7,8	7	\$1,720	\$600	\$800	\$320	
PGE G	Medical Facilities	\$28,419	NR	L	NEW	6,7	6,8	\$550	\$200	\$200	\$150	
PGE H	Residential New Construction	\$36,046	R	SW, CB	EP	7,8	8	\$510	\$300	\$150	\$60	
PGE I	Retail Stores	\$18,869	NR	L	NEW	6,7,8	6,8	\$840	\$350	\$400	\$90	
PGE J	Schools & Colleges	\$18,392	NR	L	EP	6,7,8	8	\$350	\$150	\$200		
PGE L	Education, Training and Outreach	\$40,395	CC	SW	EP	6,7,8	7	\$350	\$150	\$200		
PGE M	Emerging Technologies	\$11,260	CC	SW	EP	6,8	6,7,8	\$510	\$150	\$300	\$60	
PGE K	Codes & Standards Advocacy	\$4,636	CC	SW	EP	7,8	7	\$250	\$100	\$150		
PGE N	SW Marketing & Information	\$26,948	ALL	SW	EP	7,8	6,7,8	\$100	\$50	\$50		
PGE	TPI							\$2,300	\$1,000	\$1,000	\$300	
									\$16,617	\$6,500	\$8,250	\$1,867

Program Classification: Statewide, Local, Partnership, or Competitively Bid

Program Status: Existing Program, Revised Existing Program, or New Program

2. PG&E Overarching Market Analyses

Study	Year	Cost (\$000's)	PG&E Cost (\$000's)
RASS/SEUS/IEUS		5,600	2,458
Portfolio Analysis / IDSM	6,7,8		\$759
Relational Database/Forecast	6		\$759
Total			\$3,976

3. Proposed Statewide Utility Overarching Market Analyses and Coordination

Study and PG&E Share	Year	Cost (\$000's)	PG&E Share (\$000's)
	43.90%		
Evaluation Support to CPUC			\$52,327
CALMAC related activities			\$150
Total			\$52,477

(END OF ATTACHMENT 3)